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See Page 77.



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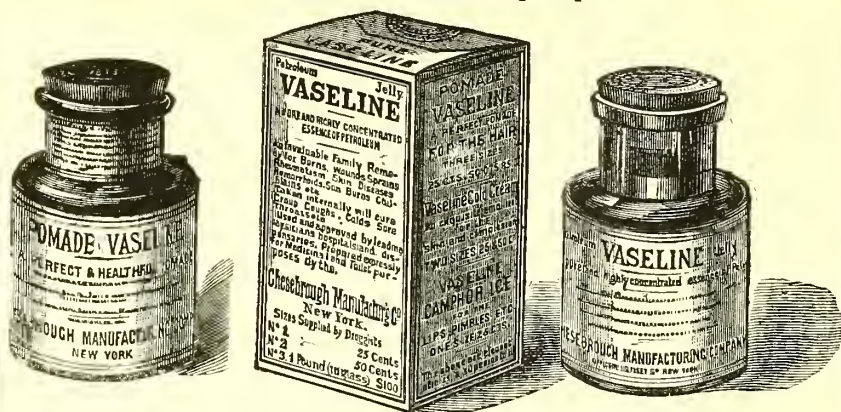
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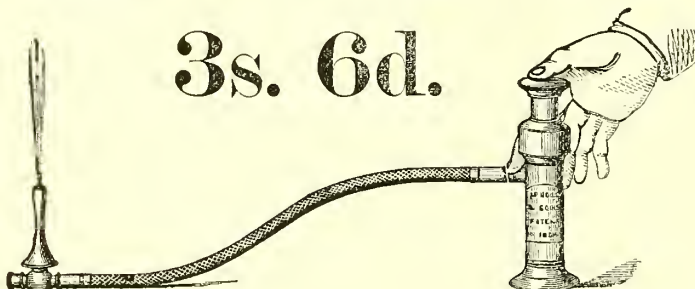
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Vide "THE LANCET," Aug. 17th, 1872; "BRITISH MEDICAL JOURNAL," June 22nd, 1872; "MEDICAL TIMES AND GAZETTE," June 22nd, 1872; "MEDICAL PRESS AND CIRCULAR," June 26th, 1872.

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The Original and Only Preparation composed of these Three Cereals.

MALTINE is a highly concentrated extract of malted *Barley*, malted *Wheat*, and malted *Oats*, containing, undiminished and unimpaired, all the nutritious principles that can be extracted from these cereals. By the most carefully conducted scientific process we are enabled to offer a perfect article, possessing *five to ten times* the beneficial and nutritive merit of any alcoholic or fermented Extract of Malt.

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LONDON, 1862.

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„ Magnolia... ..	9/6	„ Spring Flowers ...	9/6	„ White Lilac	9/6
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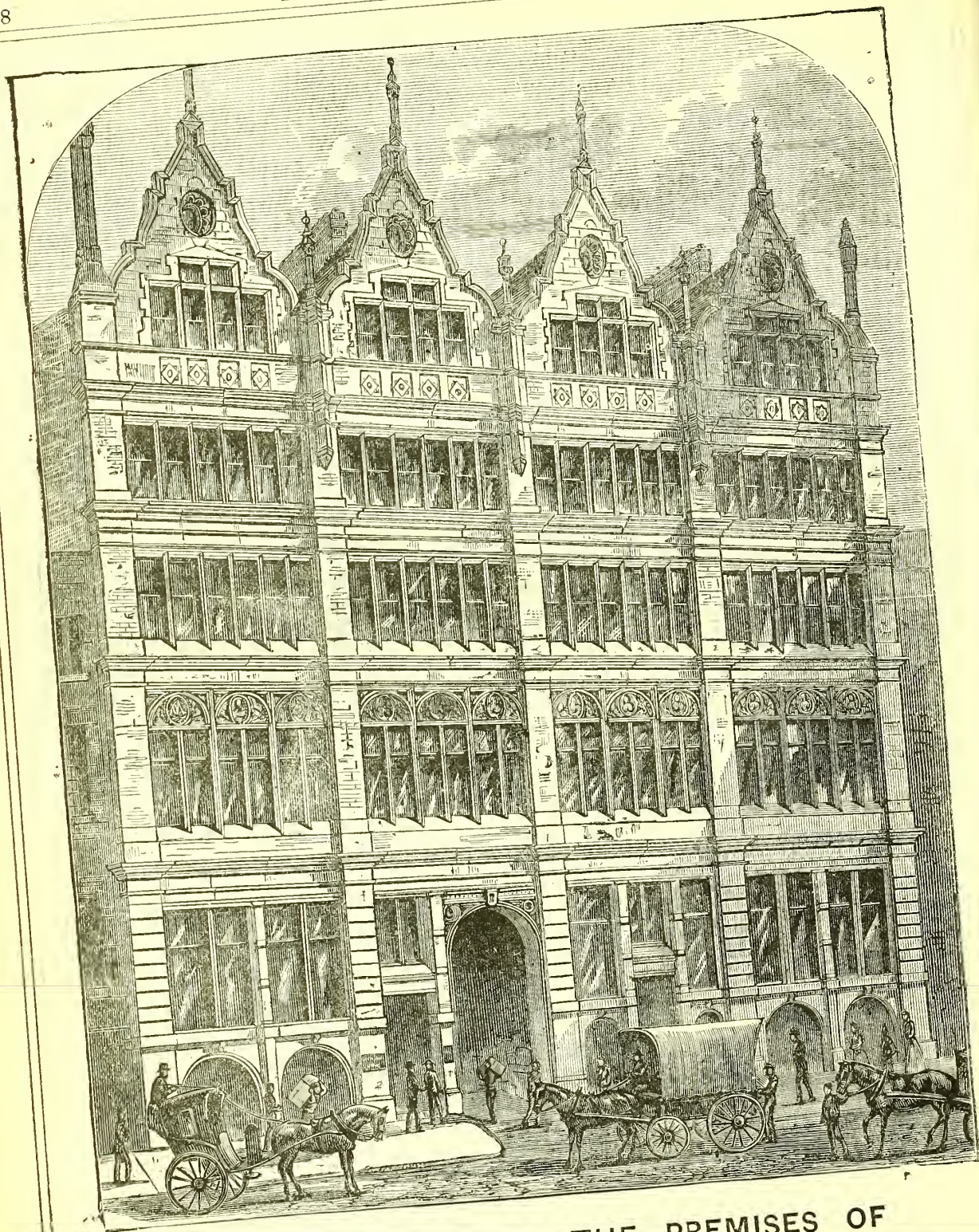
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At 60/- per cwt., Genuine, and sweetly perfumed.

This Soap is recommended to the Trade as the best value that can be obtained. Embossed Squares, 6 to lb., and in 14-lb. Boxes.

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NEW
SHOW ROOMS
ARE NOW OPEN,
CONTAINING COMPLETE SAMPLES OF ALL KINDS OF
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GLASS POTS! GLASS POTS! GLASS POTS!

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SAME PRICE AS EARTHENWARE.

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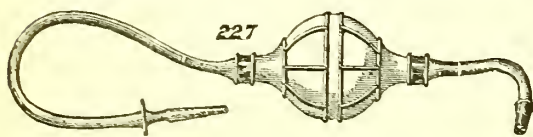
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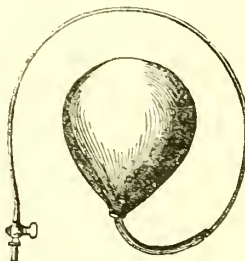
WAREHOUSE—Offices and Postal Address, 266 Goswell Road,

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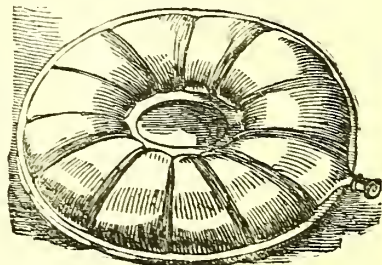
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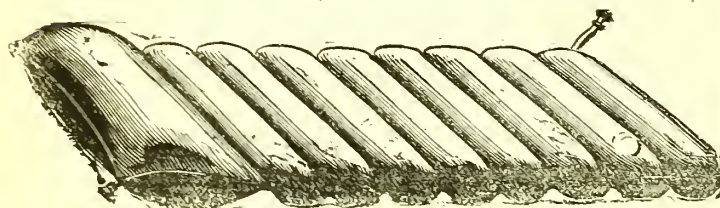


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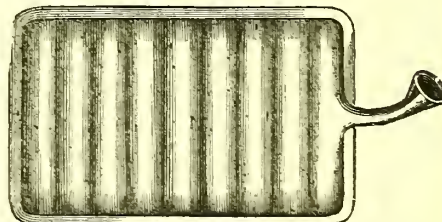


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HOT-WATER REEDED CUSHION.

Air and Water Beds.
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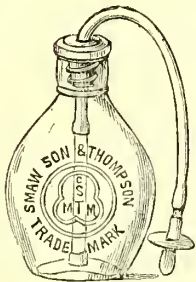
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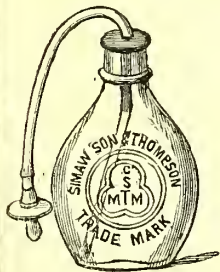
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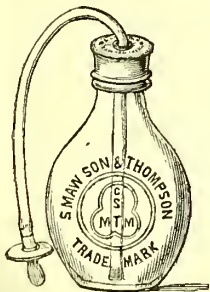
S. MAW, SON & THOMPSON'S FEEDING BOTTLES.



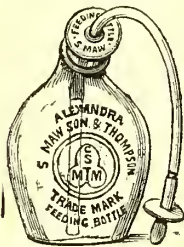
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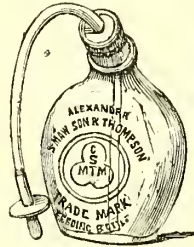
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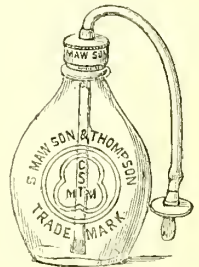
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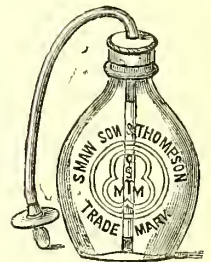
1/-, 1/6, & 2/6.
Alexandra Feeding Bottle.
Earthenware Cap.



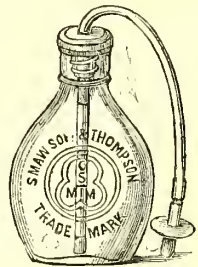
1/6.
Alexandra Feeding Bottle.
Screw Glass Stopper.



6d.
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Metal Cap.



6d.
Export Feeding Bottle.
Screw Metal Cap.



1/-.
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Screw Glass Stopper.

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Green Glass, SCREW GLASS stoppers, in boxes of 1 doz. per doz.	0	4	0
Green Glass, SCREW METAL caps, in boxes of 1 doz. per doz.	0	4	3
Green Glass, METAL caps, in boxes of 1 doz. per doz.	0	3	9
Green Glass, WOOD-TOP corks, in boxes of 1 doz. per doz.	0	3	4
White Glass, EARTHENWARE caps, and each with tube and bottle brush, in neat box . . . per doz.	0	6	6
White Glass, SCREW GLASS stoppers, and each with tube and bottle brush, in neat box . . . per doz.	0	7	0
White Glass, SCREW METAL caps, and each with tube brush, in neat box per doz.	0	7	6

MAW'S "ALEXANDRA."

	£	s.	d.
Green Glass, WOOD TOP corks, in boxes of 1 doz. per doz.	0	3	6
White Glass, EARTHENWARE caps, and each with tube brush, in neat box per doz.	0	7	0
White Glass, SCREW GLASS stoppers, and each with tube and bottle brush, in boxes . . . per doz.	0	10	0
White Glass, EARTHENWARE caps, extra teat, glass tube and valve, and with tube and bottle brush, in boxes per doz.	0	10	0
White Glass, SCREW METAL caps, extra teat, glass tube and valve, and with tube and bottle brush, in boxes per doz.	0	10	0
White Glass, GILT PORCELAIN caps, superior fittings, brown indiarubber tubing and teat, tube and bottle brush, extra indiarubber tube and teat, and with glass tube and valve, in strong boxes. per doz.	0	18	0

A Liberal Discount to Large Buyers.

S. MAW, SON & THOMPSON, 7 to 12 Aldersgate Street, London.

OZOKERINE

(REGISTERED).

A new preparation PERFECT as a BASIS for OINTMENTS, of admirable consistency, bland, emollient, antiseptic, and healing.

CANNOT BECOME RANCID.

"Moderate in price, and deserving a careful trial."—BRITISH MEDICAL JOURNAL.

"A valuable and useful substance, and will in all probability be very largely used."—MEDICAL TIMES AND GAZETTE.

"Will take a high position among our other pharmaceutical preparations."—MEDICAL PRESS AND CIRCULAR.

"Likely to prove useful as a dressing for wounds and excoriations."—PRACTITIONER.

OZOKERINE is a clear, pale yellow, very slightly fluorescent body, composed of hydrocarbons akin to Paraffine in their chemical characters. It is produced from Ozokerit, or Earth Wax, by the separation of lighter and denser hydrocarbons, and subsequent purification by processes which remove smell and taste, and yield it in the pleasant form which has already gained for it a preference before other similar bodies.

OZOKERINE has been used with remarkable success as a simple *dressing for wounds*, its mild and healing properties rendering it peculiarly grateful to the patient.

OZOKERINE is unsurpassed as an *unguent basis*; *unchangeable* in itself, except by the action of the *most powerful chemical agents*, it preserves other bodies with which it may be incorporated from all tendencies to decomposition. The *superiority of Ozokerine to lard* in this respect *cannot be over-estimated*.

OZOKERINE, in addition to the above advantages, possesses that of being *moderate in price*, which marks it out as a preparation destined to supersede all other articles hitherto used for similar purposes.

Each Tin is stamped on the lid with the words "FIELD'S OZOKERINE, REGISTERED."

MADE ONLY BY

J. C. AND J. FIELD.

Sole Agents: CORBYN, STACEY & CO., WHOLESALE AND EXPORT DRUGGISTS,
300 HIGH HOLBORN, LONDON.

Highest Prize Awarded by the Paris Exposition, 1878.

MORTIMER'S BROMO PAPER.

A Perfectly Pure Article for the Water Closet.

BOXES containing	500 Sheets	...	...	...	...	...	per dozen	12/6
"	"	1,000	"	...	...	...	"	18/-
CASES	"	50 Packets	...	...	...	...	(500 Sheets)	50/-
"	"	"	"	...	...	...	(1,000	" 72/-

10 per cent. Invoice, and 5 per cent. Cash Monthly.

SPECIAL QUOTATIONS TO LARGE BUYERS.

Sole Wholesale Agents for the United Kingdom and Colonies,

S. MAW, SON & THOMPSON, LONDON.

EVANS, SONS & CO.,

56 HANOVER STREET, LIVERPOOL;

H. SUGDEN EVANS & CO.,
Montreal, Canada.Paris Agency,
20 RUE J. J. ROUSSEAU.

EVANS, LESCHER & WEBB,

60 BARTHOLOMEW CLOSE, LONDON;

WHOLESALE & EXPORT DRUGGISTS.



NEW PREMISES AT 60 BARTHOLOMEW CLOSE, LONDON.

EVANS, LESCHER & WEBB have returned to their premises at 60 Bartholomew Close, London, which have been rebuilt, where they request that all orders and letters be addressed. The above represent their New Buildings, which are light and commodious, and occupy nearly 9,000 square feet. These Warehouses have very extensive cellarage, steam power for lifts, cranes, &c.; and the various departments, comprising over 36,000 square feet, have been provided with every modern improvement, so as to execute orders of any magnitude in a few days' time.

ILLUSTRATED EXPORT LISTS

(About 150 pages each), containing Prices of Drugs, Chemicals, Pharmaceutical Preparations, Druggists' Sundries, and Patent Medicines, &c., are sent post free to any part of the World on application (ENGLISH, in January and July; SPANISH, in April and October).

THE ABOVE LISTS OFFER UNUSUAL ADVANTAGES AS A MEDIUM FOR ADVERTISEMENTS.

Makers of Proprietary Medicines, Perfumers, &c., by advertising in same, will have their specialties brought prominently under the notice of dealers in all parts of the world. Terms for advertising (which are strictly moderate) may be obtained by applying to Messrs. EVANS, SONS & CO., 56 Hanover Street, Liverpool. All Advertisements translated into Spanish free of charge.

E. F. LANGDALE,

WHOLESALE MANUFACTURING CHEMIST, ESSENCE DISTILLER,

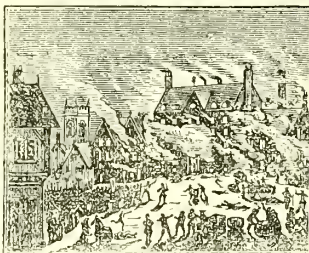
Importer and Distiller of every description of Essential Oils, Natural and Artificial Flavouring Essences, Concentrated Infusions and Tinctures, Importer of finest descriptions of Mexican and Bourbon Vanilla, French Harmless Vegetable Colours, &c.

ESSENCE DISTILLERY & LABORATORY,
72 & 73 HATTON GARDEN & 5a CROSS STREET, HOLBORN HILL, LONDON, E.C.

BONDED & EXPORT FACTORY (by special permission of Her Majesty's Honourable Board of Customs),
No. 1 WAREHOUSE, LONDON DOCKS, E.

FINEST CONCENTRATE FRENCH ESSENCES—No. 24 Strength.

	s. d.
Bonquet	per lb. 4 0
Cassia	" 4 0
Eglantine	" 4 0
Frangipani	" 4 0
Heliotrope	" 4 0
Jasmin	" 4 0
Jockey Club	" 4 0
Magnolia	" 4 0
Marcehale	" 4 0
Millefleurs	" 4 0
Mousseline	" 4 0
Orris Root	" 4 0
Patchouli	" 4 0
Reine des Alpes	" 4 0
Rondeletia	" 4 0
Rose	" 4 0



The Burning of Langdale's Distillery on Holborn Hill by the Lord Gordon Rioters in 1790, of which an interesting account will be found in Charles Dickens' "Barnaby Rudge."—Chaps. 62 and 68.

FINEST CONCENTRATE FRENCH ESSENCES—No. 24 Strength.

	s. d.
Rose Geranium	per lb. 4 0
Spring Flowers	" 4 0
Tonquin Beans	" 4 0
Tuberose	" 4 0
Vanilla	" 4 0
Verbena	" 4 0
Vertiver	" 4 0
Wall Flower	" 4 0
Wood Violets	" 4 0

&c., &c.

Shipped in Bond from E. F. Langdale's Distillery and Export Bonded Factory, No. 1 Warehouse, London Docks, under Customs Seal.

Packed in bottles of 4 lbs. each, not less than 50 lbs. assorted allowed to be packed in Bond.

E. F. LANGDALE'S PURE PRIZE MEDAL QUINT- ESSENCES.

Distilled from Herbs, Fruits, and Spices, gathered in their Bloom and Freshness.

	In 4-oz. stoppered bottles..	Per gross
Vanilla	"	168
Lemon	"	156
Almonds	"	88
Maraschino	"	84
Raspberry	"	52
Strawberry	"	48
Ginger	"	30
Peach Kernels	"	
Brandy	"	
Nutmegs	"	
Orange	"	
Celery, &c., &c.	"	

Packed in handsome wood boxes holding 12 bottles.
If in boxes with glass lids, 3d. doz. extra.
Not less than 5 gross assorted.

SPIRIT FLAVOURS.

The attention of consumers in Australia and India is particularly called to these very useful and excellent flavours. One pound of either of these essences to 50 gallons of plain spirit, will make immediately a fine brandy or Old Tom, &c., without the use of a still.—See *Lancet* report.

	s. d.
Ess. Old Tom Gin	per lb. 6 6
Ess. London Gin	" 6 6
Ess. Cognac Brandy	" 7 0
Ess. Irish Whisky	" 6 6
Ess. Jamaica Rum	" 7 0
Ess. Arrack Punch	" 10 0
Ess. Hollands	" 8 6
Ess. Geneva	" 10 0

TINCTURES

Prepared under E. F. Langdale's special supervision strictly according to the Formulæ of the British or any Foreign Pharmacopœia, from 1s. to 2s. 6d. Special Price Lists on application. If 150 lbs. and upwards assorted Tinctures are taken, special discounts allowed. 500 lbs. and upwards delivered free to ship in London.

ALCOHOLIC PREPARATIONS, FLORIDA WATER, BAY RUM, EAU DE COLOGNE, & ETC., IN BOND.

The undermentioned can only be shipped in bond. All guaranteed to be made from finest Spirits of Wine. 400 lbs. shipped free on board export ship, under Customs' Seal, direct from E. F. Langdale's Bonded Distillery.

LAVENDER WATER.

	per doz.	Fine quality. per doz.	Finest quality. per doz.
1 oz. bottles, corked ..	2 9	3 3	3 9
2 oz. " " ..	3 3	3 9	4 0
4 oz. " " ..	5 0	5 6	6 0
8 oz. " " ..	14 0	15 6	17 0
Pint " " ..	30 0	42 0	48 0

EAU DE COLOGNE.

Price & Co.'s (Late Price & Gosnell's), Perfume Distillers to the Queen.

	s. d.		s. d.
2 oz. short, gold label..	3 0	Half pint wickered ..	9 0
4 oz. " " ..	4 9	Pint " " ..	17 0
8 oz. " " ..	8 6	Quart " " ..	40 0

The above can also be had bearing J. Deleroix & Co.'s label, of
158 Old Bond Street, London.

Not less than 50 dozen of any one size or assorted.

SPT. AMMONIÆ AROMATIC.

	lb.	2 cases	6 cases	12 cases
In cases containing—	s. d.	s. d.	s. d.	s. d.
50 x 1 lb. bottles ..	1 2	1 1	1 0	0 10
12 x 4 1/2 lb. " ..	1 2	1 1	1 0	0 10
P.B. 50 x 1 lb. " ..	1 5	1 3	1 1	0 11
12 x 4 1/2 lb. " ..	1 5	1 3	1 1	0 10

SPIRITUS VINI RECT.

	25 gals.	50 gals.	100 gals.	500 gals.
FINEST PURE 68 degress over proof	s. d.	s. d.	s. d.	s. d.
(25 gals. is the smallest quantity that can be shipped in bond), in 25 or 50-gal. casks and 100-gal. puncheons	3 6	3 5	3 4	3 3

BAY RUM FOR THE TOILET.

Shipped in bond under Customs Seal.

	s. d.		s. d.
4 oz. bottles, per doz..	3 9	Pint bottles, per doz...	12 9
8 oz. " " ..	6 9	Quart " " ..	25 0

Per gallon, 7s.

FLORIDA WATER.

	per doz.
Pint bottles, glass plugs, best quality, 12 in wood box ..	7 3
" " " No. 2 ..	6 6
1/2 pint " " corked, best quality ..	4 3
" " " No. 2 ..	4 0

CHLOROFORMUM, PURE, S.G. 1.498.

	lb.	2 cases	5 cases
In cases containing—	s. d.	s. d.	s. d.
25 x 1 lb. bottles ..	1 10	1 8	1 6
50 x 1 lb. " ..	1 9	1 7	1 5
8 x 7 lb. " ..	1 9	1 7	1 5

N.B.—Special quotations for shippers taking quantities.

Address all Indents to E. F. LANGDALE, No. 1 Warehouse, London Docks. Special Price Lists post free.

"YOU DIRTY BOY!"

BY

GIOVANNI FOCARDI.



OF the many thousands of varied and beautiful exhibits at the Paris Exhibition nothing has proved so attractive or is so well remembered as this wonderfully realistic Statuette, well named in the pages of "Punch" as "*a souvenir of 1878*," and it will always be associated with this the greatest of all International Exhibitions as the "*pièce de résistance*" —the one thing universally known and admired. There is always some such remembrances of each Exhibition, from 1851, with its "Happy Boy and Unhappy Boy," and 1862 with its "Reading Girl," to this present instance, but in no former case has so extensive a popularity been achieved.

The experience it delineates is so common to us all, and the work of the sculptor so thoroughly true to nature, that it at once appeals to the youngest as well as the oldest amongst us. On its pedestal in Paris it was from morning to night surrounded by a crowd representing the people of every nationality, the expression in every face testifying to the skill of the sculptor and the irresistible humour of his subject.

It is now well known that this Statuette was a commission in the marble from A. & F. PEARS, Soap Makers to H.R.H. the Prince of Wales, to Signor Focardi, at a cost of £500, for the adornment of their Warehouse, and the Proprietors, at the request of many Connoisseurs and admirers of Art, have caused reproductions to be made in Terra

Cotta of about the size of the original marble, which they now offer at the prices annexed. As an attraction for the Wholesale or Retail Warehouse in any business it has never been equalled, for, as Mr. George Augustus Sala has said of it, it arrests the attention of "old and young, gentle and simple"; and it may be safely stated that, displayed as an advertisement and means to popularity, it is the cheapest ever offered, for an expenditure of ten times the amount on newspaper or other advertisement in the public press would fail to produce an equal notoriety in any city or town of the world. Annexed are a few extracts from among hundreds of criticisms.

FROM TRADE LETTERS.

The Statuette has been a brilliant advertisement: my Pharmacy is visited by every one curious to see the "DIRTY BOY." The local press have given it a most flattering notice.

The Broadway, Tunbridge Wells.

Yours faithfully,

GEORGE CHEVERTON.

Cooper's Effervescing Lozenge Warehouse, Oxford Street, London, W.

"YOU DIRTY BOY" is a never-ending amusement: every passer stops to smile.

W. T. COOPER.

"THE DIRTY BOY" is the attraction of the town. It is worth £20 to me as an advertisement alone.

F. FOSTER, Druggist, Scarboro'.

Trade Price of Terra Cotta Reproductions, delivered in London.

£6 6s. net.	{	Height of	Size of its base,	
		the Figure.	depth.	width.
		25 in.	17½ in.	13½ in.

A. & F. PEARS,

SOAP MAKERS TO H.R.H.



THE PRINCE OF WALES,

BY APPOINTMENT,

91 GREAT RUSSELL STREET, LONDON, W.C.

GENUINE CONDY'S FLUID

Is not and never was composed of Permanganate of Potash.

SUPREME COURT OF JUDICATURE.—CONDY v. MITCHELL.

Extract from the DAILY TELEGRAPH, Nov. 28th, 1877:—"Evidence was adduced in support of the Plaintiff's case for the purpose of showing that people had been actually deceived. It was further alleged that, while the Plaintiff's Fluids were made from Permanganates of Soda and Lime, both expensive and special products, the Defendants' were obtained from Permanganate of Potash, a cheap and objectionable article, common in the market."

SUPREME COURT OF JUDICATURE.—CONDY v. MITCHELL.

Extract from the STANDARD, Nov. 28th, 1877:—"This was an appeal by Mr. H. B. Condy, the inventor of Condy's Fluid. The suit had been brought to restrain the Defendant from selling Condy's Fluid, and, by adopting the name 'Condy's Fluid Company,' inducing people to believe that what the Company sold was actually manufactured by Mr. Condy. It was further asserted that the article sold by the Company was inferior to that manufactured by Mr. Condy."

No Prize Medals were awarded at any Exhibition for spurious imitations of my articles. The only Medals given were awarded to me personally. These are now and always have been in my possession.

CAUTION!!!—Genuine Condy's Fluid and Condy's Ozonised Water bear the facsimile signature of the Inventor and address, as under:—

H. Bollmann Condy

INVENTOR, PATENTEE, AND MANUFACTURER, BATTERSEA, LONDON, S.W.

Chemists should not allow spurious imitations of these articles, differing in composition and strength from the genuine, to be passed off upon them under cover of my name.



Prices in bottles—1s. size, 9s. per dozen; 2s. size, 14s. per dozen; 3s. size, 28s. per dozen. In tin boxes, 3s. 6d. size, 2s. 8d. each; 7s. size, 5s. 4d. each—less usual trade discounts.

Special terms for large quantities on application.

Combines the effects of Sea Water, Mountain Air, and Mineral Water. Invigorates the body, strengthens the nerves, and relieves rheumatic and other pains. Dissolves instantly in water.

Spurious imitations of Condy's Fluid and Ozonised Water are being sold at all kinds of prices, varying from 4s. per dozen for 1s. red to 6s. per dozen. None of these are of proper composition and strength, and the public usually detect the fraud.

Some unscrupulous Wholesale Houses endeavour to pass off one or other of these imitations for the sake of extra profit. Chemists should be careful they are not imposed on by substitution of any such articles, and should look for my signature as above.

CONDY'S OZONISED SEA SALT, PATENTED, FOR BATHS.

COBDEN'S QUININE AND PHOSPHORUS PILLS.

THE NEW TONIC, 2/9 and 4/6.

PHOSPHORUS is the life-giving element in the blood, and the thought-giving power of the brain. In conjunction with Quinine it is one of the most powerful curative agents known. All nervous diseases mean a want of Phosphorus in the brain and nerve centres, and to cure them is to reintroduce the deficient property.

COBDEN'S Pills (Quinine & Phosphorus) have been invented to accomplish this end, and there are now many thousands who can testify to the success of this mode of treatment. If your brain is overworked, your nerves unstrung, if you suffer from nervous or general debility, or feel a want of vigour and vitality, try a course of

COBDEN'S Pills (Quinine & Phosphorus). Mr. G. OSBORNE, *Coming Events Office*, Fleet Street, London, writes, October 31, 1877:—"Having taken 'Cobden's Pills' for a short time, I find myself greatly improved in health. They have had a wonderful effect on my nerves."

COBDEN'S Pills (Quinine & Phosphorus). Produce appetite and a healthy digestion. Renew the strength. Renovate the failing power. Remove sensations of fatigue. Produce sensations of exhilaration. Cause no after depression. Increase the capacity for mental and physical exertion. Produce cheerfulness. Give a coolness and dexterity to the mind. Confer freshness, originality, and energy on the mental processes. Produce sensations of increased muscular power. Stimulate the nerve power.

COBDEN'S Pills (Quinine & Phosphorus). Mr. HOWARD PAUL, 271 Strand, London, writes, October 3, 1877:—"I beg to testify to the efficacy of 'Cobden's Pills.' They are an excellent tonic and nerve stimulant, and most useful in relieving the lassitude that frequently follows extra mental or bodily exertion. I have been considerably benefited in my general health by their use, and recommend them to my friends as opportunities occur."

COBDEN'S Pills (Quinine & Phosphorus). Mr. W. RANDALL, of Sanger's Amphitheatre, writes, October 8, 1877:—"I have derived immense benefit from taking 'Cobden's Pills.' For a long period I had been a martyr to nervous debility, and the existence I endured was sometimes unbearable. After taking them three weeks I am a new man. I eat well and sleep well, and giddiness, timidity, and lassitude have entirely gone."

COBDEN'S Pills (Quinine & Phosphorus). Are invaluable as a stimulant or brain tonic. They act, not as a stimulant only, but as a substitute, to some extent, for rest. A couple taken an hour or so before cessation of the day's work are found to remove sensations of fatigue, to give a clearness and dexterity to the mind, to produce appetite and a healthy digestion, and to conduce subsequently to the quiet sleep of which overwork so constantly deprives those whose occupation is mental.

COBDEN'S Pills (Quinine & Phosphorus) Mr. R. J. HAMILTON, 7 Salford Terrace, Tonbridge, writes, January 29, 1878:—"I can testify to their ('Cobden's Pills') being most valuable in relieving severe pains in the head, as also for Neuralgia."

COBDEN'S Pills (Quinine & Phosphorus). They act directly on the blood, vitalising and enriching it to a surprising degree, building up the system, and throwing off the germs of disease. They thoroughly recruit the general bodily health, and restore the nervous system to a proper healthy condition, no matter from what cause impaired.

COBDEN'S Pills (Quinine & Phosphorus). Should be adopted by all abstainers as having a better and more lasting effect as a stimulant than alcohol, without possessing any of its terrible consequences. They have a certain and speedy effect in repairing the partial dilapidations Time or Intemperance may have effected on the system. They fortify it against contagion, and infuse health and vigour to resist disease.

COBDEN'S Pill's (Quinine and Phosphorus). The Rev. JOHN SHAWARD, writes from Milton, Sittingbourne, Kent, October 29, 1878:—"I am happy to inform you of the great benefit I have derived from your 'Cobden's Quinine and Phosphorus Pills.' I have been a sufferer for many months from extreme diarrhoea, great weakness, and severe mental depression; my nerves were so shattered that I dreaded the simplest duties, and lost all energy and pleasure in the performance of them. The despondency I endured became almost unbearable. I tried so many things without avail, that I began to fear my complaint would refuse to yield to any treatment. I saw your Pills advertised, but my little faith prevented me sending for them until the 7th inst., when I determined to try a 2s. 9d. box. The only thing that I now regret is that I did not send for them sooner. I have been taking them just over a fortnight, and the change in my health for the better is very marked. I have lost that horrible depression, my nerves are much stronger, and my general health very much improved. I cannot express how truly thankful I feel for the remarkable and pleasing change. I shall continue to take the Pills, and always resort to them on the first intimation of failing health."

COBDEN'S Pills (Quinine & Phosphorus). Vitalise, purify, and enrich the blood. Regulate the supply of blood to diseased nerves. Nourish diseased spinal nerves. Act as a brain tonic. Act as a general tonic. Are infallible in Neuralgia. Invigorate the whole system. Are the best tonic. They afford a ready mode of gaining strength. Are pre-eminent as a means of gaining appetite. Particularly useful for delicate females. Powerfully assist the digestive organs. Throw off germs of all diseases, and thoroughly recruit the general bodily health.

COBDEN'S Pills (Quinine & Phosphorus). May be considered a specific in Neuralgia. Their remarkably rapid and lasting effects in this complaint are perhaps their most striking therapeutical power. In this as in that of some other diseases, they exert a double power; in some instances merely regulating the blood supply to the affected nerves—in others acting in addition as a tonic or nourisher of the diseased spinal nerves, or of the affected nerves themselves. Three doses will invariably cure.

COBDEN'S Pills (Quinine & Phosphorus) increase the capacity for mental and physical exertion. If the patient has the dose while in a state of fatigue, then he feels his strength renewed; if while in a state of despondency he takes a more cheerful view of things. A state of depression *does not ensue*; therefore, whilst acting as a stimulant they differ from all other stimulants, as they leave no distressing after effects.

COBDEN'S Pills (Quinine & Phosphorus). Mr. H. COLEBY, Schoolmaster, Nutley School, Uckfield, writes, October 25, 1877:—"I can speak most highly of your 'Cobden's Pills' as a cure for Neuralgia and severe pains in the head. My sister suffered much for months, without finding any relief from other advertised remedies, till she tried a few doses of the Pills, which completely cured her. This was in May last, and she has not had a return of the pain. I have recommended them to several of my friends, and shall continue to do so, as I am thoroughly convinced of their therapeutical value."

COBDEN'S Pills (Quinine & Phosphorus).—Mr. RICHARD ROBINSON, Schoolmaster, All Saints' School, Crawley Down, Crawley, writes, November 19, 1877:—"I and my wife took 'Cobden's Pills,' and have derived considerable benefit from them—especially me. My appetite is increased, and I work better, sleep better, feel more 'a master' than I have for some years, and I am very pleased with and thankful for the results."

COBDEN'S Pills (Quinine & Phosphorus). Assist the digestive juices to convert what we eat and drink into healthy matter, so as to afford proper nourishment to the body. Are most useful in allaying the nervous, irritable, and weakly state occasioned by over brainwork, mental anxiety, loss of rest, violent shocks, fast living, overtaxing the powers, or from any of the causes combined under the head of "indiscretions of youth." They are easy to take, being very small and perfectly tasteless. They are prepared with the greatest care by duly qualified Chemists, with improved machinery and all the modern appliances for producing perfect admixture.

COBDEN'S Pills (Quinine & Phosphorus). Are food for the brain, blood, and nerves. Are a specific in Ague. Are infallible for all Low Fevers. Are a preventative of Contagion. Are very useful in Rheumatism. Are given with success in Gout. Are the best remedy for failing powers. They cure depression of spirits. Cure pains in the back. Cure Blood Poisons. Cure Melancholia. Cure Skin Eruptions. Cure Languidness. Cure Impotence.

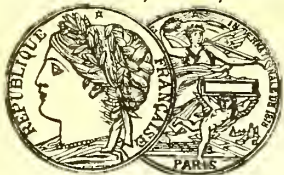
SPECIAL NOTICE.

AGENTS WANTED.

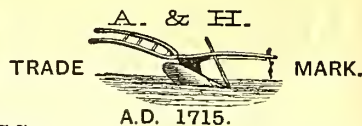
Arrangements will be made with gentlemen undertaking the Agency and ordering not less than £5 worth for a local house to house distribution of handbills bearing their names and addresses. Special arrangements as to advertising the names of agents abroad. Handbills in any language.

All Wholesale Houses, or of the Sole Proprietors,
THE SUSSEX DRUG COMPANY, 135 Queen's Road, Brighton.

SILVER MEDAL, PARIS, 1878.



ALLEN & HANBURY'S
JUJUBES



PREPARED BY PATENT PROCESS.

PREPARED BY PATENT PROCESS.

		1 lb. size.	1/- size.	6d. size.		1 lb. size.	1/- size.	6d. size.
BLACK CURRANT		Per doz.	Per doz.	Per doz.		Per doz.	Per doz.	Per doz.
GLYCERINE		30/-	8/-	4/-		32/-	8/6	4/4
LICHEN	JUJUBES,	"	"	"	PASTILLES,	"	"	"
LIQUORICE	2/-	"	"	"	2/2	"	"	"
MAGNUM BONUM	PER LB.,	"	"	"	PER LB.,	See special notice below	"	"
PECTORALE	or in tin	"	"	"	or in tin	"	"	"
PINE	boxes.	"	"	"	boxes.	"	"	"
RASPBERRY		"	"	"		"	"	"
ROSE		"	"	"		"	"	"
TAMARIND		"	"	"		"	"	"
VOICE		"	"	"		"	"	"
DELECTABLE	2/4	34/	8/6	4/4	2/4	34/	8/6	4/4
EXTRACT OF MALT	PER LB.	"	"	"	PER LB.	"	"	"
VIOLET		"	"	"		"	"	"

All the above tins are neatly wrapped ready for sale. The One Pound Tins are returnable at 6/- per doz.

GUIMAUVES, cut into Cubes,
unless ordered in sheet
GUIMAUVES PASTILLES
ANISEED LIQUORICE
JUJUBES

2/6
PER LB.

36/-

8/-

not
supplied

2/-
PER LB.

30/-

8/-

4/-

GUIMAUVES PASTILLES (Crystallized).....2/6 per lb. } The two can be
" (Rose) 2/6 per lb. } had mixed.
CRYSTALLIZED "FRUIT PASTILLES 2/- per lb.
CRYSTALLIZED VOICE JUJUBES 2/- per lb.

**PECTORAL
FRUIT PASTILLES.**

(Registered.)

An efficacious bronchial and
pulmonic Jujube of an
agreeable flavour.

Sold only in round boxes, to retail at
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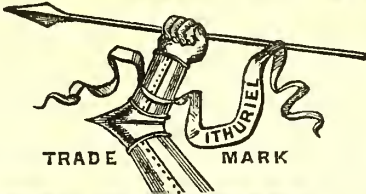
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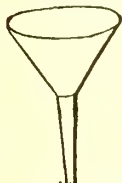
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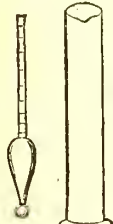
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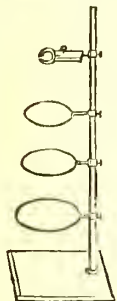
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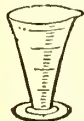
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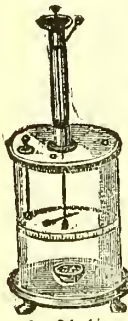
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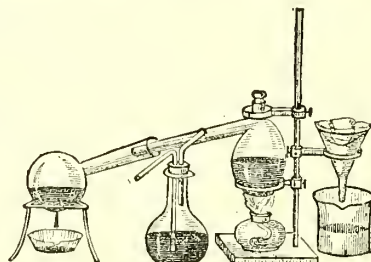
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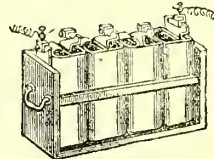
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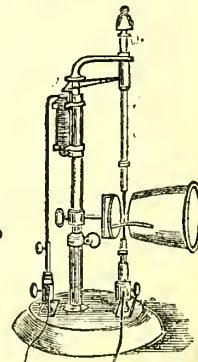
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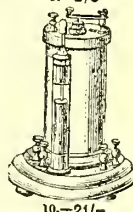
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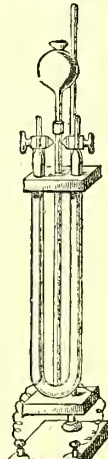
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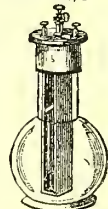
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Three days weekly or 3 hours daily	2 17 6	4 17 6	6 16 6	10 10 0	17 17 0
Two days weekly or 2 hours daily	2 2 0	3 10 0	4 17 6	7 7 0	12 12 0

SCHOOL OF PHARMACY PRIZES,

PRESENTED BY THE COUNCIL.

At the end of each of the five months' Courses of Lectures on CHEMISTRY and PHARMACY, and BOTANY and MATERIA MEDICA, a Bronze Medal and Certificates of Merit, and at the close of the Session (ten months) a Silver Medal and Certificates of Honour and Merit, will be offered for competition.

In the Class of PRACTICAL CHEMISTRY, one Silver Medal, two Bronze Medals and Certificates of Honour and Merit, will be competed for at the end of the Session.

CERTIFICATES OF ATTENDANCE.

Certificates of Attendance in the Classes of Chemistry and Pharmacy, Botany and Materia Medica, and Practical Chemistry, are given by the Professors, under certain conditions, to all Students.

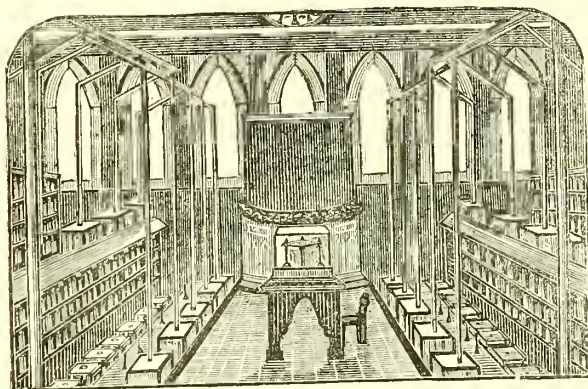
LIBRARY, READING-ROOM, AND MUSEUMS.

These are open to all Students connected with the Society. Other Students in the School may obtain orders for admission on application to the Secretary.

Application for admission to the School, for Prospectuses, or for further information, may be made to the Professors or their Assistants in the Lecture Room or Laboratories, 17 Bloomsbury Square, London, W.C.

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The Laboratory of this Institution (represented above) is justly acknowledged to be the most elegantly fitted in Great Britain. The perfect nature of the instruction given is too well known to require comment, and is proved by upwards of 1,200 living witnesses to its success now on the roll of registered Chemists, as well as by the positions occupied by its non-pharmaceutical students both as Medical Officers of Health and Analysts. The Directors continue to spare no expense in giving the greatest facilities, and in providing the most competent Lecturers, so as to ensure to students both present success and permanent benefit in after life.

Objects and Aims of the Institution.

As now constituted, the South London School of Pharmacy receives two distinct classes of pupils, and provides a separate and distinct course of study to meet the requirements of each class, as follows:—

CLASS A.

In this division a long course of study, extending over ten months, is provided for students who, not having previously attended many classes, desire to commence at the very root of matters, and be fully instructed in Pharmacy and its allied sciences. Provision is made for enabling the students to become well acquainted with chemical analysis, both in its commercial bearing and as applied to the detection of adulteration in food and drugs, as well as with practical microscopy. Students commence by attending the lectures daily, and the laboratory during three hours a day for the first three months, and thereafter they are allowed to select any one of the courses of lectures for attendance, and work in the laboratory the rest of the day. The age of entry in this department is optional, and certificates of attendance are granted.

CLASS B.

For students who, having already obtained instruction in the country, or studied by self help, desire to have a shorter course of advanced instruction to enable them to systematise and arrange their ideas. In this class no student is received who has not attained an age of over twenty years. The length of each course is three months, but in the case of men already very nearly proficient special exceptions are occasionally made.

Students entering under this division are expected to strictly comply with the rules as to perfect regularity of attendance and good and studious conduct during their stay in London, Wednesdays and Saturdays being allowed as half-holidays. They attend the lectures and laboratory daily. They are also subjected to frequent examination, written and oral, to ascertain their state of progress.

The School Premises

Are situated at 325 Kennington Road, and consist of—

1. The necessary lecture rooms, properly fitted with abundance of diagrams, apparatus, &c.
2. A museum of specimens of materia medica of the most complete and perfect nature, with many special cases presented by old students and others.
3. A museum of pharmaceutical preparations, and a convenient and well-arranged dispensing department.
4. An extensive herbarium and a number of collections of manuscript prescriptions.
5. The laboratory, 60 feet in length, fitted in so complete and elegant a manner that each student has water, gas, fume chamber, and all such appliances, within his reach, without leaving his bench. In addition to this, all the students face the demonstrators, and the benches are so arranged that each student has a set of lock-up drawers and cupboards for his own use. The table-tops are of white-enamelled slate. All bottles and reagents are found by the school, except those mentioned in the laboratory list. Expensive apparatus of all kinds are lent to the students when required.

Besides the above premises specially for pharmaceutical students, there is the South London Central Public Laboratory, at Kennington Cross, where the secretary's office is situated, and in which a specially selected number of the more advanced students are taught general and food analysis, having the advantage of seeing the analyses under the "Sale of Food and Drugs Act" for nearly the whole of the south of London, thus giving the opportunity for a wide field of experience.

The Educational Course.

The session commences on the 15th September, and lasts till the 20th of July, and the following course of lectures, &c., are delivered three times during the session.

LATIN.

This consists of 60 lessons, and includes—

1. The reading of autograph prescriptions.
2. The parsing and rules of grammar involved in prescriptions.
3. The rendering into good Latin of prescriptions written in English.

Text Book:—Pereira's *Selecta e Prescriptis*.

BOTANY.

This involves a full course of 60 lectures on structural botany, and conveys an intimate knowledge of the root, stem, leaves, inflorescence, flower, fruit, and seed. The elementary structure of plants, such as cells, vessels, and the various tissues produced by their union, is fully discussed and illustrated by practical use of the microscope. A general knowledge of vegetable physiology is also inculcated. The organs of reproduction are practically taught by dissections conducted on fresh flowers once a week, under the direction of the lecturer.

During the summer months a lecture is delivered once a week, at Mitcham, on Mr. Bridger's herb farm; and at all times the students can receive admission to the gardens of the Royal Botanical Society.

MATERIA MEDICA.

This course of 60 lectures opens with instruction in the classification of plants and the characters of the chief natural orders, illustrated by diagrams. It then proceeds to take the orders in detail, the portions of each plant used in Pharmacy, both official and non-official, being fully detailed, their geographical sources, composition, modes of isolating their active principles, and adulterations being fully described, as well as the preparations into which they enter. A general knowledge of the classification of animals, and a minute description of the drugs, &c., obtained from the animal kingdom is also given.

Text-Book—Dr. Muter's *Organic Materia Medica* (at the School Offices, and of Messrs. Simpkin & Marshall and Messrs. Baillière, Tindall & Cox).

PHARMACY.

This course lasts three months, and includes—

1. A description of the reasons involved in the processes used in pharmaceutical laboratories, and the best methods of conducting the same.
2. A minute knowledge of the B.P., and the chief non-official preparations usually sold.

SOUTH LONDON SCHOOL OF PHARMACY—continued.

3. The strengths, doses, and best modes of administration of the various official preparations.
 4. The best methods of dispensing emulsions, pills, plasters, &c.
 5. Practical instructions in dispensing and elegant pharmacy.
- Text Book—*The British Pharmacopœia*.

THEORETICAL CHEMISTRY.

This course of 60 lectures includes—

1. The modern theories of chemistry.
2. The metals and chief basylous radicals.
3. Chlorine, chlorides, hypochlorites, chlorates.
4. Bromine, bromides, and bromates.
5. Iodine, iodides, and iodates.
6. Oxygen, hydrates, and oxides of metals.
7. Sulphur, sulphides, sulphites, hyposulphites, sulphates, and sulphur substitution products.
8. Carbon, its oxides and carbonates.
9. Nitrogen, its oxides, acids, and their salts. Nitrogen substitution products.
10. Ammonia and its derivatives, amides, amines, and alkaloids.
11. Phosphorus, its oxides, acids, and their salts.
12. Arsenic, its oxides, acids, and their salts.
13. Hydrocarbons, alcohols and their derivatives, organic acids and their salts.
14. Sugars, glucosides, and other organic products not previously treated of.

Text Book—Dr. Muter's *Pharmaceutical Chemistry*. (At the School Offices, and of Messrs. Simpkin & Marshall, or of Messrs. Baillière, Tindall & Cox.)

PRACTICAL CHEMISTRY.

I. Junior Course.

(Three Months.)

This includes—

1. The manufacture of the chief chemicals of the B.P., in which the processes are typical.
2. Qualitative analysis, and separation of bases and acids.
3. The practical taking of specific gravities, temperatures, and the measurement of gases.

II. Senior Course.

(Six Months.)

This extends to—

1. Detection of poisons in organic mixtures.
2. Quantitative analysis of B.P. substances, gravimetric and volumetric.
3. Analysis of manures, water, minerals, &c.
4. Microscopic and chemical examination of food and drugs, for detecting adulterations.
5. Elementary organic analysis.

A small set of Apparatus is required by each Student, a list of which is published in the Prospectus.

Medals and Prizes.

The rewards of merit obtainable at the School are as follows:—

1. A BRONZE MEDAL, to be competed for in each of the Classes of Chemistry (theoretical and practical), Botany, Materia Medica, and Pharmacy, every three months—viz., December, April, and July.
2. The twelve Bronze Medalists for the year to compete in July, on an appointed day, for a SILVER MEDAL, for general excellence.

The examinations are written and practical in the laboratory, and are conducted by visiting examiners. All students obtaining over a fixed number of marks (three-fourths of the total) receive a CERTIFICATE OF MERIT.

Fees.

1. For the whole course of lectures (including admission to the museum) £4 4s.

(This fee entitles laboratory students to attend from the date of entry to the end of the entire session. For example, a student entering the School in September can continue to attend the lectures if he chooses until the end of the session in July without extra expense, provided he also attends the laboratory.)

2. For the laboratory—
Junior Course, three months, £6 6s.; each succeeding month . . . £2 2s.
Senior Course, first month, £4 4s.; each succeeding month . . . £3 3s.

Students who attend the lectures must also take laboratory tickets, as the course cannot be divided in any way.

Old students who have already attended the School under the former regulations will be liberally dealt with.

For further particulars apply (enclosing stamp) to W. BAXTER, Secretary.

THE "SOUTH LONDON" SERIES OF PHARMACEUTICAL TEXT-BOOKS.

By Dr. MUTER, M.A., F.C.S.,

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"He who turns to this book need not fear that he will burden his mind with unnecessary details. We may safely leave it to its own merits, and the renown of the author and his school."—*Chemist and Druggist*, 15th May, 1878.

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PHARMACEUTICAL CHEMISTRY (Synthetical and Descriptive). Price 10s. 6d.

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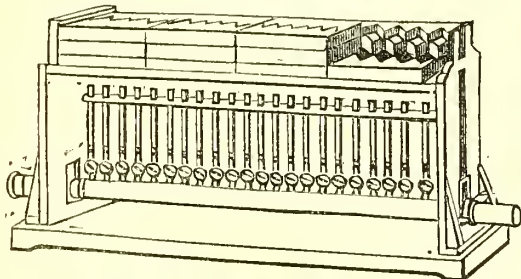
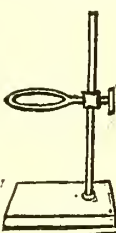
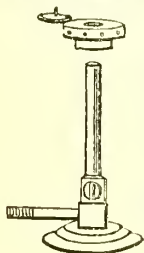
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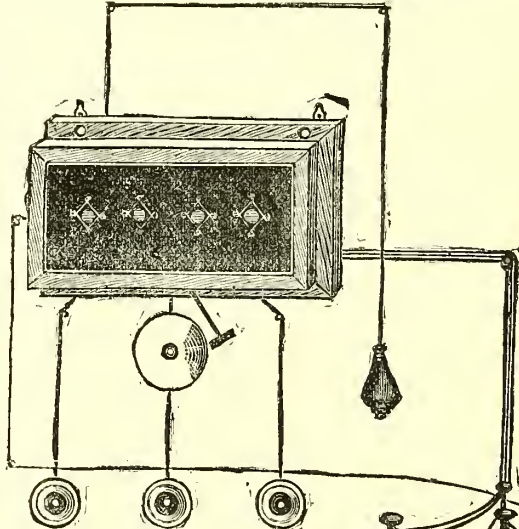
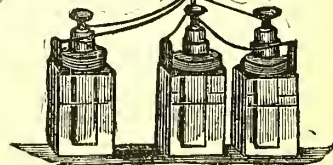


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The Session extends from September 1st till July 25th, and Students can enter at any time during that period.

The Laboratory and Lecture Hall are large, commodious, and well ventilated, and extra facilities have lately been added, so that 120 Students can now be accommodated.

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This course consists in the estimation of drugs, the extraction of their active principles, and ascertaining their purity by tests. A thorough knowledge of Systematic and Structural Botany, of general Qualitative, Quantitative, Volumetric, and Gravimetric Analysis, Chemical Toxicology, Organic and Inorganic Chemistry; and of the subjects: Heat, Light, Electricity, and Magnetism.

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* For this Fee a Student can attend until he has passed both Minor and Major Examinations free of extra cost, provided he commences his studies for the Major within three months from the date of passing the Minor.

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THE WINTER SESSION,

1879-80,

WILL COMMENCE ON OCTOBER 1st.

TWO ENTRANCE SCIENCE SCHOLARSHIPS, of £60 and £40,

Open to all First Year Students, without the condition of their having first entered to the Hospital, will be awarded after an Examination in Chemistry and Physics, with either Botany or Zoology, at the option of the Candidates, to be held on October 2nd, 3rd, and 4th.

Instruction by Special Classes in all the subjects of the PRELIMINARY SCIENTIFIC EXAMINATION of the University of London, with practical work in the Laboratories and Museums, is given from October to July; and for the FIRST M.B. EXAMINATION, from January to July.

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SCHOLARSHIPS AND PRIZES, to the value of over £300, are awarded at the end of the Winter and Summer Examinations, as also the following Silver and Gold Medals, &c., viz.:—The "Mead," the "Cheselden," the "Solly," and the "Treasurer's" Medals, and the "Granger" and "Solly" Prizes.

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Special Entries may be made to Lectures, or to Hospital Practice, and Qualified Practitioners are admitted to perpetual attendance for a small fee.

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Dr. GILLESPIE, *the Secretary*, at the Hospital.
W. M. ORD, M.B., *Dean*.

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During the ensuing Session there will be awarded five Medical Scholarships, viz., one of £80, one of £30, and three of £20, for professional proficiency. One for Chemistry, of £40; one of £50, for Resident Students only; and two Sambrooke Registrars of £50 each.

Endowed prizes of the value of 50 guineas, and College prizes of the value of £60 are also awarded annually.

For Prospectuses apply, personally or by post card, to J. W. Cunningham, Esq., King's College, London. Letters requiring further information may be addressed to Professor Bentley, Dean of the Department.

THE MIDDLESEX HOSPITAL.—The WINTER SESSION will OPEN on WEDNESDAY, October 1, with an INTRODUCTORY ADDRESS, at 3 P.M., by Dr. SIDNEY COUPLAND. The Medical School attached to the Hospital provides the most complete means for the Education of Students preparing for the University of London, the Colleges of Physicians and Surgeons, and the Society of Apothecaries.

TWO ENTRANCE SCHOLARSHIPS, of the annual value of £25 and £20, tenable for Two Years, will be competed for on SEPTEMBER 29th and following days.—Further information may be obtained from the DEAN or the RESIDENT MEDICAL OFFICER, at the Hospital.

ANDREW CLARK, *Dean*.

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CONSULTING SURGEONS—Mr. Luke, F.R.S., Mr. Curling, F.R.S.
PHYSICIANS—Dr. Andrew Clark, Dr. Ramskill, Dr. Langdon Down, Dr. Hughlings-Jackson, F.R.S., Dr. Sisson, Dr. Penwick.
ASSISTANT PHYSICIANS—Dr. Stephen Mackenzie, Dr. Sansom, Dr. Charliwood Turner, Dr. Thomas Barlow, and Dr. Gilbert Smith.
SURGEONS—Mr. Hutchinson, Mr. Couper, Mr. Rivington, Mr. James Adams, Mr. W. Tay, Mr. McCarthy.

ASSISTANT-SURGEON—Mr. Reeves.

OBSTETRIC PHYSICIAN—Dr. Palfrey.

ASSISTANT-OBSTETRIC PHYSICIAN—Dr. Herman.

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SURGEON-DENTIST—Mr. A. W. Barrett.

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The SESSION 1878-79 will COMMENCE on WEDNESDAY, OCTOBER 1st, 1879, when the Prize Distribution will take place.

Fee for Lectures and Hospital Practice, 90 guineas if paid in one sum, or 100 guineas by three instalments. The Hospital contains nearly 800 beds. The number of in-patients during 1878 was 6,448; out-patients, 49,791. The Resident and other Hospital appointments are free to full Students. The Resident appointments consist of five House Physicians, four House Surgeons, and one Accoucheurship. Also two Dresserships and two Maternity Assistantships.

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A Scholarship, value £25, in Anatomy, Physiology, and Chemistry, to second year's Students.

A Scholarship, value £20, in Clinical Medicine.

A Scholarship, value £20, in Clinical Surgery.

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THE MEDICAL SESSION COMMENCES ON WEDNESDAY, OCTOBER 1ST.

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Midwifery	W. B. JENNINGS, B.A., F.K., and Q.C.P. ARTHUR V. MACAN, M.B., M.A.O., F.K., and Q.C.P.
Chemistry	C. R. C. TICHBORNE, Ph.D., F.C.S., M.R.I.A.
Dissections	Drs. STONEY, LAMBERT, ORMSBY, SPENCER, BLAKELEY, DOYLE, ROCHE, and HEUSTON.

SUMMER SESSION,

Commencing 11th April, 1880.

Botany	WM. RAMSAY McNAB, M.D., F.L.S.
Materia Medica ..	GEORGE F. DUFFEY, M.D., F.K., and Q.C.P.
Medical Jurisprudence	HUGH AUCHINCLOSS, L.R.C.S.I.
Institutes of Medicine and Pathology ..	STEWART WOODHOUSE, M.D., F.R.C.S.I.
Practical Chemistry ..	C. R. C. TICHBORNE, Ph.D., F.C.S.
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WINTER SESSION.

PHYSIOLOGY AND HISTOLOGY—Arthur Gamgee, M.D., F.R.S.
ANATOMY, DESCRIPTIVE AND PRACTICAL—Morrison Watson, M.D., F.R.S.E.
COMPARATIVE ANATOMY—A. Milnes Marshall, M.A., D.Sc.
CHEMISTRY—Henry E. Roscoe, LL.D., F.R.S.
ORGANIC CHEMISTRY—C. Schorlemmer, F.R.S.
CLINICAL MEDICINE—William Roberts, M.D., F.R.S.
PRINCIPLES AND PRACTICE OF MEDICINE—J. E. Morgan, M.D., M.A.
SURGERY—Edward Lund, F.R.C.S.
PRACTICAL SURGERY—Samuel M. Bradley, F.R.C.S.
GENERAL PATHOLOGY AND MORBID ANATOMY—Henry Simpson, M.D.; Julius Dreschfeld, M.D.
HOSPITAL INSTRUCTION—The Physicians to the Royal Infirmary; the Surgeons to the Royal Infirmary.

SUMMER SESSION.

PRACTICAL PHYSIOLOGY AND HISTOLOGY—Arthur Gamgee, M.D., F.R.S.
MIDWIFERY AND DISEASES OF WOMEN AND CHILDREN—John Thorburn, M.D.
MATERIA MEDICA AND THERAPEUTICS—Alexander Somers, M.R.C.S.; Daniel John Leech, M.D.
HYGIENE AND PUBLIC HEALTH—Arthur Ransome, M.D., M.A.
MEDICAL JURISPRUDENCE—Charles J. Cullingworth, M.R.C.P. & S.
PRACTICAL MORBID HISTOLOGY—Julius Dreschfeld, M.D.
OPHTHALMOLOGY—David Little, M.D.
PRACTICAL CHEMISTRY—Henry E. Roscoe, LL.D., F.R.S.
BOTANY—W. C. Williamson, F.R.S.

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Professor VAUGHAN, F.L.S., M.R.C.V.S.

PHYSIOLOGY:

Professor YOUNG, M.D.

CHEMISTRY AND TOXICOLOGY:

Dr. STEVENSON MACADAM, F.R.S.E.

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See page 29.



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4.—N.W. A well-fitted and well-stocked Business; returning £68 per month; long advantageous lease; price only £650, part (£500) in cash.

17 HART STREET, BLOOMSBURY SQUARE, LONDON.

SALES BY AUCTION.

RARE OPPORTUNITY.—To be SOLD by PUBLIC AUCTION by Mr. Alfred King, at The Thatched House Hotel, Market Street, Manchester, on Wednesday, September 24, at 2 o'clock, the Light Retail and Prescribing Business carried on for 7 years at 79 Bank Street, Rawtenstall, near Manchester. Shop is well fitted, may be seen any day up to time of sale, and full particulars obtained by applying to Owner on the premises. Satisfactory reasons for disposal. To a pushing young man the present is a rare opportunity.

BUSINESSES WANTED.

WANTED, Particulars of a Sea-side Business of Chemist and Druggist (genuine); facing sea preferred. Apply to J. D., care of Mr. Case, Brighton Road, Stoke Newington, London, N.

BUSINESSES to be DISPOSED OF.

FOR IMMEDIATE SALE, Wholesale and Retail Drug Business; quite central, large market town, population over 260,000. Apply, B. S. B., 50 Langsett Road, Sheffield.

IMMEDIATELY.—At a valuation, light Retail Business, in good position in large Manufacturing Town in Yorkshire; large premises; returns over £800; rent, £80; splendid chance for good prescriber. Address, C. Clarke & Co., York.

FOR DISPOSAL, in S.E. suburb, a genuine ready-money light Retail; rent £50; lease 16½ years to run; house 7-roomed; corner shop; well fitted; price £900. "Fid." care of Messrs. Wright, Layman & Umney, Southwark Street, E.C.

CHEMIST'S BUSINESS for Disposal, near large junction station; no opposition for 7 miles; great number of gentry, and large agricultural district; price, £350. C. J. H., Office of THE CHEMIST AND DRUGGIST, A Cannon Street, London, E.C.

FOR DISPOSAL.—£250.—Dispensing, Prescribing, and light Retail Business, established about 3 years; shop handsomely fitted up; rent low; long lease; stock nearly worth the money. Apply, in the first instance, to C. F. A. R., 146 Mare Street, Hackney.

FOR SALE, the Stock and Fixtures of a Chemist and Druggist, with option of Purchase of Shop and House; a capital opportunity for a young man commencing business, with a knowledge of Dentistry or Photography. Apply to Mr. Kershaw, Sun Street, Hitchin, Herts.

IMMEDIATE DISPOSAL, in one of the best market towns in Suffolk, a sound light Retail and Dispensing Business, with excellent house, garden, &c.; 4 years' lease unexpired, renewable. Apply to P. S., care of Messrs. Hodgkinson, Stead & Treacher, 127 Aldersgate Street, E.C.

SMALL, old-established Retail and good Prescribing Business, in the most populous and prosperous part of Derby; satisfactory reasons for disposal; income can be made very moderate to an immediate purchaser. Address, "Chemicus" (Mayer), 6½ St. Peter Street, Derby.

FOR DISPOSAL, in Yorkshire, with immediate possession, a genuine Drug Business, successfully carried on for upwards of 40 years by the present and former proprietors; satisfactory reason for leaving; returns last year over £900. Apply, W. B., Clark, Bleasdale, Bell & Co., York.

FOR DISPOSAL, a genuine Drug Trade, near Birmingham; returns £600 per annum; rent £40; 12 years' unexpired lease; good house; capacious warehouse, coach-house and stabling; price, including two paying proprietary medicines, £600. Apply, C. E., Wyleys & Co., Coventry.

TO BE DISPOSED OF IMMEDIATELY, in the North of England, in consequence of the death of the Proprietor, a first-class Business; returns last year over £1,300; rare opportunity. For full particulars address "Chemicus," Messrs. Barron, Harvey & Simpson, Giltspur Street, London.

SOUTH COAST.—For Disposal, a good ready-money Chemist and Druggist's Business, held by the present Proprietor 8 years; shop large, and fairly handsome fittings; good dwelling-house, of 8 commodious rooms; no Sunday trade; open to an offer between £200 to £300. Apply, F. C. E., 85 Sea Side, Eastbourne.

FOR IMMEDIATE DISPOSAL.—A genuine Retail Chemist's Business; no booking; situated in one of the principal thoroughfares of Nottingham, in close proximity to the Market Place; satisfactory reasons for leaving. For price and particulars apply to J. G. Clarke, Chemist, 24 Glasshouse Street, Nottingham.

IMMEDIATELY.—Owner, leaving for the country, wishes to Dispose of his London Business; same name 19 years; good stock; shop lofty and well fitted; commodious house; private entrance; public appointment attached; bargain to an immediate purchaser. For particulars, apply to A. B., 81 Malden Road, London, N.W.

DRUGGIST'S SHOP, ready fitted, on easy terms; in the best outside thoroughfare in Birmingham; just refitted and beautified throughout; pleasant situation; rent low; population large; no cutting or opposition; £10 per week may be done by a pushing man. R. Tomlinson, Shopfitter, Birmingham. Write for lists.

AN Old-established Chemist and Druggist's Business; wines and spirits attached; best position of manufacturing and borough town; shop well-fitted and stocked; in good working order; double plate-glass front; good house, yards, and cellars; rent and taxes low; price from £750 to £800. Apply, Box, 19 Market Place, Bath.

TO CHEMISTS AND DRUGGISTS.—For Disposal, all the Stock-in-trade and Fixtures of an old-established house, comprising, mahogany drawers, counters, hant show glass case, desk with glass case in front, bottles, jars, oil tanks, and other trade requisites; all in excellent condition. Wm. Thurlby, Morton, Bourne, Lincolnshire.

FOR DISPOSAL, a well-established Chemist and Soda-Water Business; 10 years in present hands; plate-glass front, mahogany fittings, glass cases, and well-stocked shop; convenient house; returns £1,100; rent £35; satisfactory reasons for leaving. Address, E. M. C., care of Messrs. Barron, Squire & Co., Bush Lane, London, E.C.

CHESHIRE.—A high-class Family and Dispensing Business, delightfully situated in a beautiful and fashionable locality; elegantly-fitted shop; superior house; very nice garden; excellent opportunity for a gentleman accustomed to first-class pharmacy. Address, K. T., Office of THE CHEMIST AND DRUGGIST, 44A Cannon Street.

PENZANCE.—In consequence of the death of the proprietor, an old-established Retail and Prescribing Chemist's Business, with Gilbey's Wine and Spirit Agency; commanding corner position, in best part of town; shop nicely fitted and well stocked; excellent large house, warehouse, &c. Apply, "Exors," 62 Chapel Street, Penzance.

FOR SALE, in consequence of the death of the owner, a Wholesale and Retail Tea and Chemist's Business in the High Street of Annan, Dumfriesshire; it was established upwards of fifty years ago, is very remunerative, and could easily be extended; the premises are most suitable, and moderately rented; capital required about £1,200. Apply to John Primrose, Writer, Dumfries.

MANCHESTER.—For Disposal at Valuation a Genuine Retail Dispensing and Prescribing Business, with teeth extracting; established by present proprietor 25 years; in a good thoroughfare and excellent position, corner shop, good house, with private entrance, and cellared throughout, at low rent; owner retiring. For particulars address, M., Office of THE CHEMIST AND DRUGGIST, 44A Cannon Street.

MIDLAND COUNTIES.—For Disposal, a genuine Drug Trade; shop well arranged, mahogany fittings, plate-glass front; situated in a pleasant suburb of a flourishing town, population about 50,000; returns over £700 per annum; good house; rent £30; lease can be arranged; part purchase money may remain; income very moderate. For further particulars, apply M. H., Wyleys & Co., Coventry.

DEVONSHIRE.—Large Premises and Mineral Water Business for Disposal.—The premises are large and very convenient, suitable for any Wholesale and Retail business; two plate-glass shop fronts, and situate in main street; good house, large yard, stores, coach-house and stabling, besides the factory, with good drive in; none but principals treated with; part may remain on security. Apply, by letter, John Roberts, 72 Exeter Street, Plymouth.

WORCESTERSHIRE.—To Surgeons and Chemists.—For immediate Disposal (in consequence of the death of the late proprietor, a M.R.C.S. London, and by whom it was used as an open surgery), a neatly-fitted light Retail and Dispensing Chemist's Shop; it would be suitable for a steady young man about to commence, as there is already the nucleus of a good business; incoming, including fittings, fixtures, stock, &c., £200. Apply to Mr. Kimherley, 22 Balsall Street, Birmingham.

FOR TRANSFER, a very old, sound Chemist's Business, returning over £800 per annum, situated in a populous Market Town, surrounded by several extensive and flourishing ironworks; convenient house, premises, large garden; 21 years' lease, half unexpired; rent and taxes under £40 a-year; satisfactory reason for disposal; references; full investigation; price, £550, or small goodwill; stock, fixtures, at valuation. Further particulars, address "Drug," Heaton & Co., 5 Coleman Street, London.

£350.—EDMONTON, Middlesex; established 50 years; in Vendor's hands 13 years; on lease; rent £40, worth £50, could be cleared by letting; returns £360 to £400; comfortable house, semi-detached, with garden and out-houses, situated on the high road in centre of market; buildings increasing rapidly; the fixtures modern; stock fresh; to be had at valuation, or lump sum £550 for lease, goodwill, fixtures, and stock. Apply, Mr. Stanley, Dentist, Fore Street, Upper Edmonton, N.E.

FOR IMMEDIATE DISPOSAL, the Stock-in-Trade and Fixtures contained in a shop and premises in the town of Maryport, in the county of Cumberland; the shop, which has been recently fitted up, is situated in one of the principal streets of the town, and is specially adapted for carrying on a good Retail business; the stock is extensive, and for the most part new; this affords a good opportunity to anyone wishing to commence business, as the stock and fixtures must be disposed of at once, and will be sold cheap. For further particulars, apply to Mr. T. Milburn, Solicitor, Workington.

EMPLOYERS WANTING ASSISTANTS.

ASSISTANT Wanted, for the whole day, or from about 1 to 9 o'clock, for about two months; no Sunday duty. "Alpha," Heaton & Co., 5 Coleman Street.

OUTDOORS.—Assistant; used to Travelling in small Drug and Dry-saltery; must have good address, and be of pushing habits. Apply, James Eseret, Hull.

DRUG AND DENTISTRY BUSINESS.—Wanted a trustworthy Assistant; state age and where last employed. Address, A. P. Patterson, 197 Bridgman Street, Bolton.

QUALIFIED DISPENSING ASSISTANT Wanted, for China. Apply, by letter, with full particulars of qualifications and experience, to A. S. W. & Co., 136 Fenchurch Street, London, E.C.

WANTED IMMEDIATELY an Assistant, must be a good Dispenser and Counterman, and able to extract teeth. Apply, personally if possible, to Mr. A. J. Brown, Chemist, 55 Trafalgar Road, Greenwich, S.E.

MANAGER, within an hour of London, who can take the lead in the Retail and Dentistry; a gentleman who would put £300 in the business could realise £250 per annum. Mr. Brett, King Street, Leicester.

APPRENTICE Wanted, in December; home comforts, and every facility for acquiring a thorough knowledge of Homœopathic Pharmacy. Apply, stating particulars, to W. Gilbert, Homœopathic Chemist, Bournemouth.

APPRENTICE.—Grindley & Son, Pharmaceutical Wholesale and Retail Chemists, have a Vacancy in their establishment for a well-educated Youth; one who has passed the Preliminary Examination preferred. Address, C., Northgate Street, Chester.

WANTED, an experienced Assistant, of gentlemanly appearance and address, for the retail counter of a first-class Business in the West of England (in-doors). Apply, stating age, height, salary required, &c., to E. S. W., care of Mr. H. Ayseough Thompson, 22 Worship Street, E.C.

WANTED, a young man (out-door) of good address to take the management of a branch establishment (no Sunday duty); first-class references required as to ability, sobriety, and integrity. Address, enclosing carte, stating age, height, and salary required, to T. Kirkup, Chemist, Elswick Road, Newcastle-on-Tyne.

WANTED, a respectable, steady Assistant, age about 20, for a mixed country business; excellent opportunities for acquiring general experience; situation comfortable; work light; ample time for study if required; two kept. Apply, stating salary, age, reference, &c., to Mr. Randall, Pharmaceutical Chemist, Wareham, Dorset.

WANTED IMMEDIATELY, a Junior or Improver who can make himself generally useful, and take duty alternately, the Principal having two businesses; state age, experience, and salary required; also, to save time, please enclose references, and carte do visite if convenient; good appearance and address necessary; Churchman preferred; comfortable home offered. Apply, Hugh Edgson, Chemist, Nottingham.

ASSISTANTS WANTING SITUATIONS.

CHEMISTS' Temporary Manager; excellent references. Mr. Baker, 3 Spital Street, Guildford.

WHOLESALE; Wet or Dry Counter; aged 23; good references. X. Y. Z., 4 Beaconsfield Terrace, Uxbridge Road, W.

AS ASSISTANT; disengaged at end of October. "Alpha," Office of THE CHEMIST AND DRUGGIST, 44A Cannon Street.

AS MANAGER of a BRANCH, with the view of Purchasing in a few months; prefer a sea-port or watering-place. Address, "Chemieus," 4 Old Street, Ludlow, Salop.

WHOLESALE DRUGGIST.—A young man, L.P.S. (Ireland), desires a situation in a wholesale house; highest references. Address, "Chemieus," 160 York Street, Belfast.

TOWN TRAVELLER or AGENT.—Wanted, by a highly respectable young man, well acquainted with the Druggists' Sundry business. J. B., Office of THE CHEMIST AND DRUGGIST, 44A Cannon Street.

DISPENSER or MANAGER; now disengaged; aged 30; single; Minor associate; West-end experience; speaks French; highest references. "Dispenser," care of Mr. Strickett, 161 St. George's Road, Camberwell.

WANTED, by a registered chemist, a Situation as Manager in a branch or a widow's business; country town preferred; a thorough knowledge of dispensing and veterinary business; many years' experience. Apply, Ivy Cottage, Morpeth.

LOCUM TENENS, or temporary Assistant, by a Pharmaceutical Chemist and Registered Dentist; over 18 years' varied experience; by the day, week, &c.; town or country; disengaged 18th inst.; terms moderate. Lomas, 4 Jasmine Villas, Heber Road, Lordship Lane, S.E.

EVENING EMPLOYMENT.—The Advertiser, who has been accustomed to first-class dispensing and general retail trade, would be glad to give his services (after 6.30 P.M.) for one, two, or more evenings per week, in return for a moderate remuneration. Address, A 910, Messrs. Deacons', Leadenhall Street, E.C.

TO MANUFACTURERS, Wholesale Druggists, Oil Merchants, &c.—Wanted by the advertiser, who has for many years called on grocers, confectioners, chemists, &c., on his own account, in the midland counties, a good Agency or Commission to work in with his own business. Premises stand in a good and central position. Can give good references and (if required) security. Address, in first instance, Agent, 105 Cheapside, Birmingham.

IMPORTANT NOTICE.

From September 1st, 1879, the Wholesale Price of

JEWSBURY & BROWN'S ORIENTAL TOOTH PASTE

Is 14s. per dozen 1s. 6d. size.

21s. do. 2s. 6d. do.

Subject to Usual Discounts.

Wholesale Dealers are requested to note the alteration in lists.

CAUTION.

GUM EXTRACT,

FOR producing a permanent head of creamy richness on Ginger Beer, Ginger Ale, Lemonade, and other aerated beverages; also on Beers, Ciders, Wines, &c.—To Makers and Vendors of Effervescing Drinks, and to the public generally.—Messrs. W. J. BUSH & CO., of Artillery Lane, Bishopsgate, London, Manufacturing Chemists, hereby give notice, that they are sole proprietors of the patent for making the above Gum Extract, and of the recipe from which and the process by which the said extract is prepared. Messrs. W. J. BUSH & CO. hereby caution all persons against making the said Gum Extract or any imitation thereof. And they also caution all persons from selling or using the said Gum Extract or any imitation thereof other than that made or supplied by them or their authorised agents. All persons infringing the above patent will be immediately proceeded against. The only genuine Gum Extract is that prepared by Messrs. W. J. BUSH & CO., 20 to 23 Artillery Lane, Bishopsgate, London, and the Works, Ash Grove, Haekney, and sold in bottles and in tins, price 2s. 6d. per lb., bearing their labels, and issued from their warehouses.—WILSON, BRISTOW & CARPMAIL, Solicitors, Copthall Buildings, E.C.

"GOLDEN STAR" BAY LEAF WATER.

Trade Mark.  Registered.

The Only True and Genuine. Unrivalled in Richness and Delicacy.

Put up in an Attractive Form, and commands a Ready Sale.

The above quality has never before been offered in the English market. Its immense sale has heretofore been confined to America and West Indies. It is offered with the positive assurance that it is unequalled, and a successful rival with all other fine Toilet Waters.

SUPPLIED BY ALL WHOLESALE DEALERS.

Distillers' Agency: 114 and 116 Southampton Row, LONDON, England.

"PERFECTION"



MRS. S. A. ALLEN'S World's Hair Restorer

Never fails to restore Grey Hair to its youthful colour, imparting to it new life, growth, and lustrous beauty. Its action is certain and thorough, quickly banishing greyness. It is not a Dye. It ever proves itself the natural strengthener of the Hair. Its Superiority and Excellence are established.

The GENUINE only in PINK WRAPPERS Sold by all Chemists & Perfumers

Principal Depot: 114 & 116 Southampton Row, LONDON, England.

"An acknowledged Success, as certified to by numerous Testimonials."

CARTNER'S

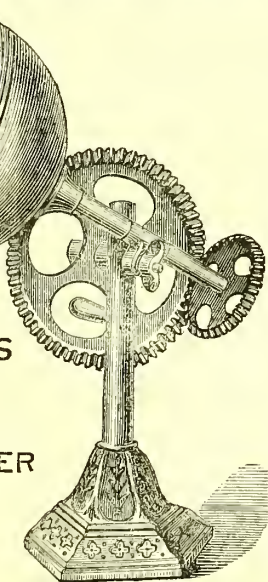
NEWLY IMPROVED

PATENT PILL COATERS,

For the Counter or Warehouse, Hand or Steam Power, with Formulæ and Circular of Instructions for

PEARL AND SUGAR COATING.

CARTNER'S
PATENT
PILL COATER



PRICES	No. 1 to Coat up to 1 lb...	..	..	£1 5s.
	No. 3 " " 3 lb...	..	..	£3 3s.
	No. 5 " " 12 lb...	..	..	£5 5s.

TESTIMONIAL.

"I have tried your 'PATENT PILL COATER' with success much greater than I expected. My first attempt with Pil. Rhei. Co. 1 lb. quite astonished me. In about ten minutes they were finished almost equal to the best I have seen. With a little practice I see no reason why a novice should not be able to produce a perfectly Coated Pill at a cost of almost nothing."

JOSEPH H. BOLTON.

552 KINGSLAND ROAD, July 2, 1879.

To Mr. D. CARTNER.—Dear Sir,—I am exceedingly well pleased with the accomplishment of your "PATENT PILL COATER," operating upon a pound of perfectly rounded Pills in the following manner, viz.: The above quantity of Pills placed in the spheroid, sprinkling them with a weak solution of clear gum (3 oz. mucilage B.P. to 3½ oz. aquæ) and revolving one or two minutes to equally distribute the moistening, afterwards throwing in a small quantity of fine French chalk in successive portions, revolving at about 80 to the minute for a quarter of an hour or so, an excellent appearance being the result; but permitting them to dry, and repeating the same process, adds a higher degree of excellence and finish. Pill Coating has been a popular object of mine for many years, adopting various means and processes, but must candidly state yours proves the simplest and most expeditious, by which means the youngest novice with initiation can produce Coated Pills unsurpassed by those who make a speciality of such.—Believe me, yours faithfully,

RALPH HALL.

ANOTHER WRITES:—I cannot understand anyone not succeeding with your "PATENT PILL COATER." I put the Pills into the cylinder and revolve; whilst revolving I sprinkle them with gum water, and keep revolving for a couple of minutes, in order that all the pills may be slightly moistened all over; I then add the chalk, and still continue revolving until the pills are dry; repeating this as often as necessary, twice or thrice at the outside; and my pills are equal to those of any manufacturer.

SAMPLES AVAILABLE. ANY WHOLESALE DRUGGISTS' SUNDRYMEN.

PRIZE MEDAL, PARIS, 1879.

JAMES B. READMAN,
MANUFACTURING CHEMIST,
79 WEST REGENT STREET, GLASGOW.
WORKS: KIRKINTILLOCH, N.B.

Maker of PHOSPHATE OF SODA, Pure and Commercial—PHOSPHORUS—STANNATE OF SODA—PHOSPHATED GYPSUM—and other Chemical Products.

READMAN'S TRIPSA (or Caustic Phosphate of Soda) is the best article for Removing and Preventing Scale in Steam Boilers. Price, in 2-cwt. kegs, 26s. 9d. per cwt., delivered. Agents wanted for this article.

GREENSILL'S FAR-FAMED MONA BOUQUET

THE ORIGINAL AND ONLY GENUINE.

The great popularity of this exquisite Perfume is a proof of its excellence and superior qualities.

T. S. GREENSILL, Chemist, Douglas, Isle of Man,
Inventor, Proprietor, and Maker.

AGENTS—LONDON: Sanger; Maw; Edwards; Newbery; Mather; Barclay; Whittaker & Grossmith; Hovenden; Parton & Osborne; Butler & Crispe; Tidman & Son; Barron & Squire; Wright, Layman & Umney; Jno. Thompson; Burgoyne, Burbidge & Co.; Grimwade, Ridley & Co.; Baiss Brothers. LIVERPOOL: Evans, Sons & Co.; Clay, Dod & Case; R. Sumner & Co.; Raimes & Co. MANCHESTER: J. Woolley; Lynch & Bateman; Jewsbury & Brown; Mather. EDINBURGH: Duncan & Flockhart, DUBLIN: M'Master; Hodgson. YORK: Sutcliffe & Headley; Clark, Bleasdale. THIRSK: Wm. Foggett. BRISTOL: Ferris & Co. LEEDS: Goodhall & Backhouse. BIRMINGHAM: Churchill & Son; P. Harris & Co.; Parton & Osborne; Southall Bros. & Barclay.

Agents for CALCUTTA: Smith, Stanistreet & Co. MONTREAL: Sugden, Evans & Co. NEW ZEALAND: Kempthorne, Prosser & Co. MELBOURNE: Grimwade, Ridley & Co.

Introduced in 1852.

Registered Trade Mark—"Tower of Refuge, Douglas Bay."

BEST SEIDLITZ POWDERS.**JAMES C. CHUBB**

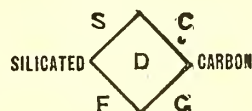
Supplies the above, loose, at 7/- per gross; and in boxes at 8/-, 9/-, and 10/- per doz., through the Wholesale Houses, or from 29 OLD STREET, LONDON, E.C.; and will forward list of articles packed by him on application.

HIGGINSON'S ENEMAS.

BEST QUALITY, with Elastic Vagina Pipe and Shield, and Bone Rectum Pipe, in Slide Cedar Boxes, per doz. 28s.

Sample to any City Drug House for enclosure 34 stamps, or quarter dozen P.O.O. for 7s.

JOHN CENTRETON,
204 CITY ROAD, LONDON, E.C.

SILICATED CARBON FILTERS.

Prize Medals—PARIS, 1867. HAVRE, 1869.

ADOPTED, IN PREFERENCE TO ALL OTHERS, by the Admiralty, and used in the General Post Office, the London and Provincial Hospitals, and many Public Establishments in various parts of the World.

SILICATED CARBON FILTER COMPANY,

CHURCH ROAD, BATTERSEA, LONDON.

STILL FURTHER REDUCED PRICES.

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THE

Cheapest **Condry's Fluid** of All

IS SUPPLIED BY

R. CONDY & CO.

Condry's Fluid, red ...	...	Government strength	1s. size,	4s. per doz. net.
"	"	"	2s. "	8s. "
"	"	"	4s. "	16s. "
Condry's Ozonised Water	"	"	2s. "	8s. "
"	"	"	3/6 "	16s. "

R. CONDY & CO. (R. CONDY, Managing Director),
8 STATIONERS' HALL COURT, LONDON, E.C.

Chemists wishing to profit by our Reduced Prices should order **R. CONDY & CO'S FLUID** of their Wholesale House or send Order and Remittance direct to us.

Our articles are made in strict accordance with the Patent, and are guaranteed by the original labels of our old Firm, to imitate which is a misdemeanour.

The Practitioner says—"Mr. Condry seems to have allowed himself to be outstripped in economical production."

LATEST INTELLIGENCE!!!

MESSRS. DANIEL JUDSON & SON have the pleasure to inform their Customers that their

LIQUID GUM ARABIC,

In 2s., 1s., 6d., 4d., and 1d. Bottles,

Is now elegantly **PERFUMED**—the *Sour* Smell incidental to the best Gums, when melted, being superseded by “Fragrant Odours,” rendering the use of Judson’s Gums a pleasurable occupation. Judson’s Gums (except 1d.) are secured by Betts’s Metal Capsules, being supplementary to the polished *Boxwood* Cover holding the Brush.

150 Copies may be made with **JUDSON’S DUPLICATE INK**, for use with Multiple Writers, Chromographs, &c.

STOPPERED BOTTLES, 8s. PER DOZEN.

SILVER PAINT may now be procured corresponding with **JUDSON’S GOLD PAINT**, now so popular.

1s. 6d., 12s.; 3s. 6d., 28s. per dozen, Carded or Boxed.

DANIEL JUDSON & SON, 77 Southwark St., LONDON,
AND ALL WHOLESALE HOUSES.

ASHTON & KINDER,

SUCCESSORS TO ERNEST RAYMOND & CO.,
Chemical and General Drug Merchants, and

ANILINE DYE

MANUFACTURERS,
52 DALE ST., PICCADILLY, MANCHESTER.
WORKS, ROMILEY, CHESHIRE.

MAGENTA—Blue and Red shades.

BLUE—Dark and Light shades.

GREEN—Blue and Yellow shades.

VIOLET—Blue and Red shades.

PACHA RED.

AND ALL OTHER COLOURS.

ALSO COLOURS FOR HOUSEHOLD USE, PARTICULARLY SUITABLE FOR SALE BY CHEMISTS & DRUGGISTS.

SPECIAL COLOURS for PAPER MAKERS.

SPECIAL COLOURS for LEATHER and
SKIN MAT MANUFACTURERS.

ULTRAMARINE.

MIRBANE.

ESSENCE of MIRBANE, for CHEMISTS,
CONFECTIONERS, &c.

Export Orders and Quantities on Special Terms.

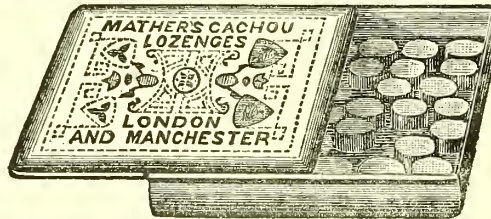
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NOVELTY! NOVELTY!

THE BEST, CHEAPEST, AND MOST SALEABLE NOVELTY OF THE YEAR.

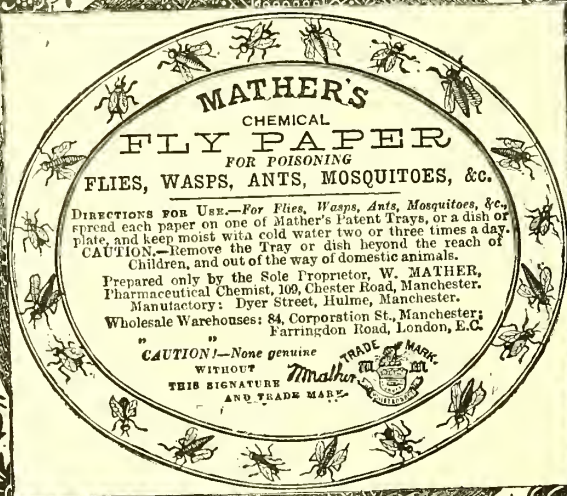
MATHER'S CACHOU LOZENGES,

IT PATENT METAL SLIDE BOXES.

8s.**PER GROSS,**SUBJECT TO USUAL
DISCOUNT.**8s.****PER GROSS,**SUBJECT TO USUAL
DISCOUNT.

Special Quotations on application for Large Buyers and for Export.

A Customer writes: "I must congratulate you on sending out the neatest and cheapest pennyworth I ever saw. Send me two gross more of your Cachous; though only opened late last night, nearly the whole of the box sent have been disposed of."

THE
MOST EFFICIENT.THE
MOST SALEABLE.PRICE 20s.
Per 1,000.Special Discount to Large
Buyers.

WILLIAM MATHER,

FARRINGDON ROAD, LONDON; 84 CORPORATION STREET, MANCHESTER.

Index to Advertisements.

September 15, 1879.

SCALE OF CHARGES FOR ADVERTISEMENTS.

Whole Page, £5. Half Page, £2 15s. Third Page, £2. Quarter Page, £1 12s. Sixth Page, £1 5s. Eighth Page, 18s.

Special Rates for Wrapper and pages preceding and following Literary matter, also pages facing inside of Wrapper. The above Scale of Charges will be subject to a discount of 10 per cent. upon 7 and 20 per cent. upon 13 insertions, prompt quarterly payments.

N.B.—An order for 13 insertions means 12 in the CHEMIST AND DRUGGIST and 1 in the CHEMISTS' AND DRUGGISTS' DIARY. The same rule also applies to an order for 7 insertions, or to an order for insertion until countermanded, if such order is in force in October of any year.

All Advertisements intended for insertion in the current Month must be sent to the PUBLISHER OF THE CHEMIST AND DRUGGIST on or before the 12th, except Employers' and Assistants' Advertisements, which can be received up to 10 A.M. on the morning previous to publication.

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			PHILLIPS & SON	Dandelion Coffee	95
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IZOD, J.	Meerschum and other Pipes	56*	PLUMBAGO CRUCIBLE CO.	Siddall's Beetle Powder	114
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KINMOND & CO.	Apneumatic Mineral Waters	102	ST. THOMAS'S HOSPITAL MEDICAL SCHOOL		30
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			SAUNDERS, J. W.	Private Teacher	TEXT, 390
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NERWICH & CO.	Tooth Paste, &c.	57*	WOODS, W.	Arca Nut Tooth Paste, &c.	56*
NESTLE, H.	Milk Food	92	WYLES & CO.	Wholesale Druggists	78
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NEWBERRY & SONS.	Berdoe & Co.'s Perfumes, &c.	63	YATES, W. S.	Chemists' Shop Filter	56*
NEWBERRY & SONS	Toilet Paper and Brown Windsor Soap	20	YOUNG & POSTANS	Phosphorised Cod Liver Oil	TEXT 390
NEWHAM, B., & CO.	Chloride of Lime, &c.	90			
NEWMAN, S.	Hoff's Malt Extract	30	ZIMMERMANN, A. & M.	Agents for the Chemische Fabrik auf Actien, Berlin—Schering's Celloidine, &c.	88
NEW VETERINARY COLLEGE, EDINBURGH		32			
NORTH BRITISH CHEMICAL CO.		88			
NUTTALL, C., & SONS	Teething Powders—Pills	82			

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Distilled from the leaves of the Bay Tree (Myrciactris).
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This delicate Spirit has acquired a great popularity in America and the West Indies. It is an indispensable Eau de Toilet for the Nursery and Bath, and is an effective remedy for Headache, Nervousness, and Rheumatic Pains. It also alleviates irritation of the skin after shaving or from change of temperature, and removes all impurities from the skin.

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Much admired for its
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LIME JUICE AND GLYCERINE.

This valuable toilet preparation for the Hair is highly recommended on account of its nutritive and restorative properties.

Attractively put up in Round Shouldered White Glass Bottles.

3 ozs.	4 ozs.	6 ozs.	8 ozs.
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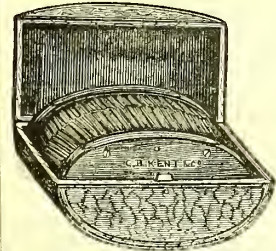
11 GREAT MARLBOROUGH STREET, LONDON, W.

SILVER MEDAL]

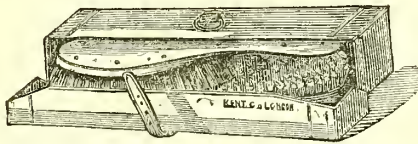
ESTABLISHED 1777.

[PARIS, 1878.

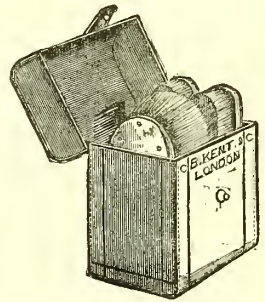
Kent's Solid Leather Cases, Fitted with Brushes, &c., &c.



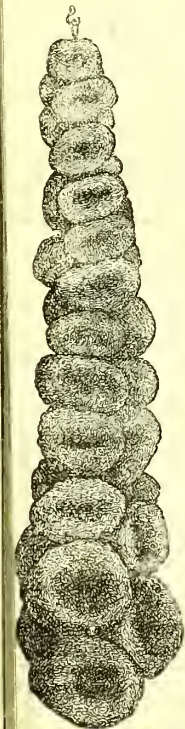
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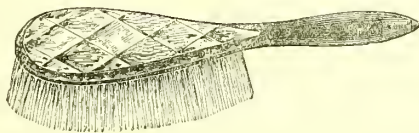
Solid Leather Cases, Fitted.



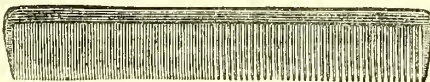
Cases only to contain one pair of Military Hair Brushes 3s. each.



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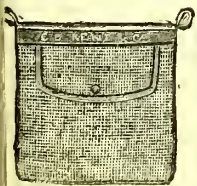
KENT'S CLOTH BRUSHES, IN WOOD AND IVORY.



KENT'S ROACH CLOTH BRUSHES.



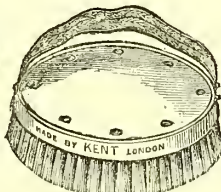
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KENT'S HAND MIRRORS, Manufactured by G. B. KENT & Co.'s PATENT MACHINERY, Are unsurpassed for Price and Quality.



KENT'S FLESH BRUSHES.

KENT'S TOOTH BRUSHES
Are manufactured at their Factory at Victoria Park, expressly set apart for this one description of Brush.



			Price per dozen.
First Quality	G.B. Kent & Co	London	6/6
Second Quality	Imperial	Quality	5/0
Third Quality	WARRANTED	LONDON	4/0
Fourth Quality	WARRANTED	SECURE	3/6
Fifth Quality	WARRANTED	SOUND	3/0

Badger Hair Tooth Brushes	..	4/6	6/0	8/0	10/0	per doz.
Children's "	..	3/0	3/6	4/0	"	
Tooth Brush Guards	..	Metal	3/3	Porcelain	5/0	"
Japanned Wet Brush Holders	..	3/3	5/6	6/6	13/0	"

SHAVING BRUSHES.

Prepared Hair	..	2/0	4/0	6/0	7/6	9/0	12/0
Badger "	..	8/0	9/6	14/0	18/0	21/0	24/0 28/0 32/0

KENT'S NAIL BRUSHES.



Bent Back	..	4/0	7/0	8/6	10/6	12/0	14/6
Round End	..	4/0	7/0	8/6	11/0	13/0	15/0
Roached Grooved	..	19/0	24/0	28/0	32/0	36/0	40/0

OVAL



PATTERN.

No.	22/0	22	23	24
	8/6	13/0	17/6	22/0
Handled Nail Brushes	..	4/0	4/6	7/0 8/0 10/6 12/0 16/0 per doz.
Wood	..	12/0	16/0 18/0 21/0 24/0 27/0	"
"	..	Fibre	21/0 27/0 30/0 36/0 42/0 48/0 54/0 per grs.	"

KENT'S PAINTING BRUSHES are of the highest quality, and warranted of standard sizes. KENT'S HOUSEHOLD AND STABLE BRUSHES of every description.

G. B. KENT AND CO.'S ILLUSTRATED PRICE CURRENT FOR 1879, FREE ON APPLICATION.

ANILINE COLOURS FREE FROM ARSENIC.

We beg to introduce to the notice of the Trade a Series of ANILINE COLOURS FREE FROM ARSENIC, which we venture to think will be of considerable service.

NO ARSENIC ACID WHATEVER is used in the manufacture of these Colours, and we can confidently recommend them for the use of Confectioners and others who find the presence of small quantities of Arsenic to be deleterious.

SAMPLES AND PRICES ON APPLICATION—

E. CRAWSHAW & CO.,

80 FANN STREET, ALDERSGATE STREET, LONDON, E.C.

THE MOST PROFITABLE BRAND.
EAU DE COLOGNE
OF THE
NUN

MARIA CLEMENTINE MARTIN,
OPPOSITE THE CATHEDRAL, COLOGNE.

SOLE AGENT FOR THE UNITED KINGDOM—

ARTHUR I. JOSEPH, St. Leonard's-on-Sea.

PRICE LIST.—Duty paid, net.				In bond.
2 oz. shorts, Eau de Cologne	8/-	..	..	5/-
4 oz. " " " " " "	15/-	..	..	10/-
4 oz. " " " " " wickered	20/-	..	..	15/-
Half-pints " " " " " "	25/-	..	..	17/3
Pints " " " " " "	50/-	..	..	34/6
Quarts " " " " " "	100/-	..	..	69/-

Small Cases assorted to order (of not less than 3*l.* value in bond) delivered free freight to London, less 7½ per cent. discount. May be obtained on these terms of any Wholesale House, or at the London Depot—

1 & 2 Australian Avenue. H. C. MASON, Agent.

READ THIS.

BAYLY'S LAUNDRESSES' FRIEND

(REGISTERED).

Once used will always be required. One trial will prove its value to Ladies, Housekeepers, and Laundresses for the brilliant gloss and stiffness it imparts to all kinds of Linen, especially to Shirt Fronts, Collars, &c., and can be used with equal success in boiled and cold water starch. Sold by all Chemists, in 1*l.* and 3*d.* Packets, and 6*d.* Tins. 1*l.*, 8*s.*; 3*d.*, 2*d.*; 6*d.*, 4*s.* gross, less 10 per cent. for cash.

INSECT POWDER TINS.

Perforated, to hold ½ oz., 6*s.*; 1 oz., 8*s.* 6*d.*; 2 oz., 1*l.* gross, less 5 per cent. for cash.

PREPARED BY

G. W. BAYLY,

65 MACDONALD STREET, BIRMINGHAM.

BEST ROLLED LETTERS, 18*s.* gross.

GLASS BOTTLES.

REDUCTION.

ROUND SHOULDER OR LIME JUICE BOTTLES.
½ 1 1½ 2 3 4 6 8 10 12 16 20 oz.
3/6 4/- 4/6 5/6 6/6 7/6 9/- 11/- 14/- 16/- 19/- 21/- grs.

BEST KALI OR CONFECTIONERS' BOTTLES.
4 6 8 10 12 20 oz.
8/- 10/- 12/- 15/- 18/- 24/- gross.

BEST STOPPERED BOTTLES (all kinds), ½ oz. to 20 oz., 1*s.* to 6*s.* gross.

BEST QUALITY GREEN FLINT DISPENSING BOTTLES, Vial Lips, Flat or Oval, 3-oz. & 4-oz., 7*s.* 6*d.*; 6-oz. & 8-oz., 8*s.*; 10-oz. & 12-oz., 14*s.* per gross. GLASS SYRINGES, BEST QUALITY, ½-oz., 1*l.*; 1-oz., 2*l.*; 2-oz., 4*l.* gross.

HIGGINSON'S ENEMAS. Green, Red, or Black, in sliding Cedar Boxes, with Gum Elastic Vagina Pipe, 25*s.* per dozen for an order of six dozen or upwards.

All and every kind of Bottle made.

Special prices given for any particular pattern.

Special quotations to large buyers.

GASOGENES, SYPHONS, &c.

GASOGENES. 3-pint, 11/6; 5-pint, 15/-; equal to De Fevre.

If Nickel-plated, 3/- each extra.

SYPHONS. Pure English black tin. Best in the Trade.

22/6 per dozen, for 12 dozen and upwards.

BEST WHITE FLINT OVAL DISPENSING

OR PERFUMERY BOTTLES.

2 oz., 6/-; 3 oz., 7/6; 4 oz., 7/6; 6 oz., 9/-;

8 oz., 11/- per gross.

FEEDING BOTTLES. (If in large quantities.)

Best Green Glass, one dozen in a box, 28*s.* grs.

Best White 29*s.*

1*s.* Feeding Bottle, one in a box, with brush,

&c., complete, 50*s.* gross.

GLASS SYRINGES, BEST QUALITY, ½-oz., 1*l.*; 1-oz., 2*l.*; 2-oz., 4*l.* gross.

GLASS SYRINGES, BEST QUALITY, ½-oz., 1*l.*; 1-oz., 2*l.*; 2-oz., 4*l.* gross.

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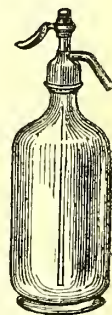
GLASS SYRINGES, BEST QUALITY, ½-oz., 1*l.*; 1-oz., 2*l.*; 2-oz., 4*l.* gross.

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JONAS & JULES LANG, GLASS WORKS, ALSACE & LORRAINE.

Showrooms—13 Charterhouse Buildings, Aldersgate Street, London, E.C., and 28 Rue Notre Dame de Nazareth, Paris.

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IN PATENT METAL SLIDE BOXES.

SOLD ONE PENNY EACH.

PATENT BOXES at Patentees' Prices Empty if required.

CACHOU LOZENGES supplied in Bottles or Bags at Manufacturers' lowest Prices, either large pale pink or small bright pink.

Silvered CACHOU AROMATISE in Glass Bottles or Brass Boxes.

SEND FOR LOWEST PRICES AT ONCE.

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OLD BOOK COVERS, &c., MADE NEW.

MIRACILINE.

Original Patent Leather & Cloth Restorer.

MAKES OLD BINDINGS LOOK NEW.

Every person their own bookbinder. Full and simple directions.

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All who value their Books should try it. This will restore all Leather and Cloth on Books, Desks, Dressing Cases, Office and Library Tables, &c., as when new.

MIRACILINE.

Sold by all Stationers, Fancy Dealers, &c., throughout the United Kingdom, in 6*d.*, 1*s.*, and 2*s.* 6*d.* Bottles; or post free for 8, 13, or 30 stamps, from the Sole Proprietors—

BRIEN & CO., 53 TABERNACLE WALK, FINCHBURY SQUARE, LONDON, E.C. To be had Wholesale of Messrs. Mather & Son, Farringdon Road; Barclay & Sons, 95 Farringdon Street; Edwards, 157 Queen Victoria Street; Maw, Son & Thompson, 7 to 12 Aldersgate Street; Milward & Sons, 40 Charterhouse Square, E.C.; Sutton, Bow Church Yard; Sanger & Sons, 150 and 252 Oxford Street; and all Wholesale Houses.

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Office and Library Tables made as new.

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RECTIFIED

SPIRITS OF WINE*One Quality only—Finest BRITISH SPIRIT.*

Not less than 2 Gallons, 56° o.p., 20/6; 60° o.p., 21/0 per Gallon.

" " 6 " 56° o.p., 19/9; 60° o.p., 20/3 " "

FOR CASH ON DELIVERY ONLY. COUNTRY ORDERS MUST CONTAIN A REMITTANCE.

HENRY BRETT & CO.,**OLD FURNIVAL'S DISTILLERY, 26 & 27 HIGH HOLBORN, LONDON, W.C.**

PURE GOLD COLOURED

SHERRY FOR MEDICATION,

FREE FROM ACIDITY.

£12 10s. per Quarter-Cask of 27 Gallons.

£6 5s. per Octave ... 13½ "

10s. per Gallon in smaller quantities.

RAILWAY CARRIAGE PAID.

Brilliant and fit for immediate use. Casks to be returned or paid for.
2½ per cent. discount for Cash.

A SAMPLE UPON APPLICATION TO

ROBERT GRAY, Wine Merchant,
6 MOORGATE ST., LONDON, E.C.**PURE SPIRITS OF WINE**FOR
TINCTURES, ESSENCES, PERFUMES, &c.,
OXFORD ROAD DISTILLERY, MANCHESTER.**MESSRS. SMITH & GIBB**

Beg to call the attention of CHEMISTS and DRUGGISTS to the under-mentioned Prices of Pure Spirits of Wine:—

Strength per cent.	Specific Gravity.	Price per gallon.
63 over proof ..	0·8238	21/0
60 " ..	0·8208	20/8
55 " ..	0·8366	20/2
50 " ..	0·8482	19/6

Special quotations for large quantities.

Terms—Cash on Delivery. Jars to be returned or paid for.

Orders from the country must be accompanied with a remittance, including the price of the Jars, which are charged as follows:—2 galls. 3/-; 3 galls. 3/6; 4 galls. 4/-; 6 galls. 6/-. When the empties are returned the money will be repaid. Can be had free for exportation.

BURROUGH'S

SPIRITUS RECTIFICATUS, P.B.

CHEMICALLY PURE SPIRITS OF WINE.

The Best English Grain Spirit, Free from Fusel Oil.

60 over proof, 20s. 6d. per gallon; 56 over proof, 20s. per gallon; less 6d. per gallon for five gallons. Lower quotations for quantities.
Cash on delivery or with order. Packages charged, and money repaid when empties returned, 2s. 6d. for two gallons; 5s. for five gallons.
Country Orders must contain remittance or reference to London House.**DALE STREET DISTILLERY, LONDON, S.W.**

Also Duty Free for Exportation.

**1/6 JUDSON'S 1/6
GOLD PAINT.**

1 Bottle Gold Powder
1 " Mixing Liquid
1 Mixing Bowl
1 Brush

12s. per dozen sets.
Six sets on a card, or each set
in card box.

1 Bottle Gold Paint
1 " Mixing Liquid

10s. 6d. per doz. sets.
Six sets on a card, or each set
in card box.

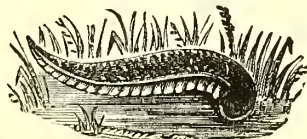
For regilding picture and glass frames.
For gilding lamp stands and gas-fittings.
For renewing ormolu ornaments.
For illuminating on paper, silk, or leather.
For artistic cabinet work.
And for a thousand useful and domestic purposes.

SPONGE.**M. PETERSON & CO., Importers,**

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LIVERPOOL.For Home, Foreign, and Colonial Markets.
Wholesale only.

HAMMO SPECKLED.

TRADE MARK
REGISTERED.

All Orders by Post receive immediate attention.

LEECHES!Warranted Healthy, Wholesale
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from Marshes.FITCH & NOTTINGHAM,
Leech Breeders,MARSEILLES, & 55 PENTONVILLE
ROAD, LONDON, N.

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WHITAKER & GROSSMITH'S PURE WHITE GLYCERINE SOAP.

Richly perfumed, and guaranteed to contain the necessary quantity of GLYCERINE for effectually imparting to the SKIN the softening and healing properties for which it is so justly famed.

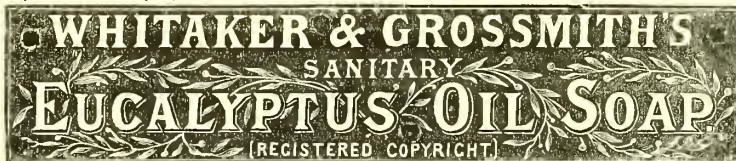
NECESSARY CAUTION.—This unrivalled Toilet Soap was originated by us in 1863, and solely by its superior merit and moderate price has now attained the patronage of a wide circle of all classes of society. As many (external) imitations of our saleable article are often falsely offered as the real Soap, all vendors should please note that the Box and Wrappers now bear our "Trade Mark," and not be misled by inferior counterfeits, thereby causing disappointment to purchasers, and consequent injury to the sale of the original and genuine Soap.

1s. 6d. Boxes of Three Tablets, 12s. per Dozen Boxes.

SELECT TOILET PREPARATIONS, extensively increasing in demand, which attests their excellent quality.

TOILET SOAPS.			BOUQUETS.			POMADES, &c.		
	Per doz.			Per doz.			Per doz.	
Cent-Fleur (copyright) 2/6	Boxes of 3 tablets	20/	Cent-Fleur (copyright)			Cent-Fleur (copyright) 8/	12/ & 20/	
Jockey Club "	1/6 "	12/	Star of India ...	In Glass	12/	Petroleum Pomade ...	12/ & 18/	
Musk Windsor "	1/6 "	12/	White Lilac ...	Stoppered		Brilliantine ...	8/	12/ & 20/
Sandringham "	1/6 "	12/6	Birthday ...	or Sprinkling	18/	Anglo Eau de Cologne	8/ & 12/	
Eucalyptus Oil "	1/6 "	12/	Hawthorn ...	cap Bottles.	24/	Eucalyptus Vinegar ...	12/ & 20/	
Semi-Cut Bars "	1/ Bars of 6 kinds	8/6	White Violet (and 50 others)			White Cherry Tooth Paste	8/ & 12/	

Highly recommended by the *Lancet*, *Sanitary Record*, and the *Medical Press* as an elegant Sanitary Toilet Soap for the Skin, with an aromatic disinfectant for the Apartment.



The Antiseptic properties of the *Eucalyptus Tree* are now fully retained by enclosing the Soap in tinfoil, and any of the old stock on hand will be exchanged for fresh free of cost.

The Standard says:—"As an antiseptic, *Eucalyptus Soap* has no rival."

1s. 6d. Boxes of Three Tablets. 12s. per Dozen Boxes.

Trade Price Lists sent and Orders executed through Wholesale Houses, or direct from the Manufacturers,

WHITAKER & GROSSMITH, Wholesale Perfumers, 120 Fore Street, City, London.

TRADE MARK.—"COAGULINE."—TRADE MARK.

KAY'S New TRANSPARENT CEMENT for BROKEN ARTICLES.

"Clear as crystal," "stronger than glass," "tough as leather."

6d., 1s., 2s., in boxes or on cards. Show cards, handbills with name, &c., Specimens, &c., for home or export, free.

KAY'S COMPOUND ESSENCE OF LINSEED, "The Stockport Remedy," for Coughs and Colds. Cures nine cases out of ten. In bottles, 9d., 1s., 1½d., 2s., 9d., 4s., 6d., &c. Sold by all Chemists.

Worthy of Recommendation and well known.
LINSEED LOZENGES.—(Solidified Linseed Tea).—An agreeable sweetmeat, most demulcent and nourishing, which may be taken in any quantity by Children and Adults, for their soothing and beneficial effect. Packets, 6d. CHLORO-LINSEED COUGH LOZENGES.—A medicated Linseed Extract, for out-door use, on leaving a heated room, &c. Demulcent, Expectorant, Warming and Soothing. Packets, 6d.

LINUM CATHARTICUM PILLS (of the Purgative Linseed). Purely vegetable; the most wholesome aperient and corrective for young persons and adults. Boxes, 9d., 1s., 1½d., 2s., 9d., of all Chemists.

KAY'S TIC PILLS.—A specific and pure nervous Tonic. The best form of administering the Quinine, Iron, and other Tonics of which they are largely composed. Boxes, 9d., 1s., 1½d., 2s., 9d., of all Chemists.

STRAMONIUM CIGARETTES.—For Asthma. 2s. per dozen.

CUE CEMENT.—For Tipping Billiard Cues. 1s. and 2s.

For Circulars, Show Cards, Specimens, &c., address:—

KAY BROTHERS, Stockport.

Sold by all the Wholesale Druggists, Sandrymen, and Medicine Vendors.

EWENS' CLARIFIED LARD, MARROW, SUETS, AND OILS.

JAMES EWEN & SONS are induced to give further publicity to these articles, the continued demand by all who have used them being satisfactory proof "that where purity of basis" in ointments, &c., is required, they are most desirable.

By their method of purifying, the fats are not chemically altered, but simply divested of all particles tending to decomposition, they are consequently available for the most delicate preparations.

Adeps. Benz. B. P. and Pharm. Lard (*vide* P. J. Vol. I., No. 8). Direct, "for Cash only," from

JAMES EWEN & SONS' CLARIFIED FAT WORKS,
5 HATFIELD STREET, STAMFORD STREET, S.E.;

Or through any of the Wholesale Houses, with their usual credit, at a small advance.

CAUTION.—See that each package bears their label with name and weight.

OLD Style

HUNT'S PAPER BOTTLE CAPS.

THE NEW

PLEATED BY
**PATENT
MACHINERY.**
SOLD BY ALL
DRUGGIST'S SUNDRIESMEN
• Manufactory, •

LONDON

3, 4 and 5 Little Windmill Street, Golden Square.

ESTABLISHED 100 YEARS.**TOILET AND FANCY SOAPS**
OF EVERY DESCRIPTION.**CHOICE PERFUMES IN BULK.**

No. 1 extra 12/ per pint of 20 ozs.

No. 1 9/6 " "

No. 2 8/ " "

Put up also in great variety of size, style, and price.

SOAPS.

Zinc, Sulphur, Petroleum, 6d. & 1/

Petroleum, Juniper Tar, & 4/ & 8/

other Medicated Soaps ... doz.

Glycerine Jelly, 6d. and 1/

stoppered bots., 4/ & 8/

per doz.

T. F. BRISTOW & CO.
TOILET SOAPS & PERFUMERY.
MANUFACTURERS,
5 BISHOPSGATE AVENUE, LONDON.PRICE LISTS
ON APPLICATION.**BRISTOW'S
SPECIALTIES.**

Carbolic Acid Soap ... In boxes 3 tblts.

Glycerine and Carbolic Acid 1/ & 1/6

Glycerine and Oatmeal Soap ... 8/ & 12/ per doz.

Baby Soap for Nursery use { In bxs. 4 & 12 tblts.

(Illustrated Label) 9/ and 27/ per doz.

Family Soap, in bxs. 4 & 12 tblts (1/ & 2/9) 8/ & 24/ "

Cold Cream Soap, in bxs., 3 tbs. in bx (1/6 & 2/6) 12/ & 21/ "

Stockholm Tar Soap } in boxes, 3 tablets in box (1/6) ... 12/ "

Pure Coal Tar Soap ... } in 4d., 6d. & 8d. tblts, in 3 doz. bxs. 2/6, 3/6, 4/6 doz.

Transparent Soap, in boxes 3 tablets (1/ and 1/6) 8/ & 12/ "

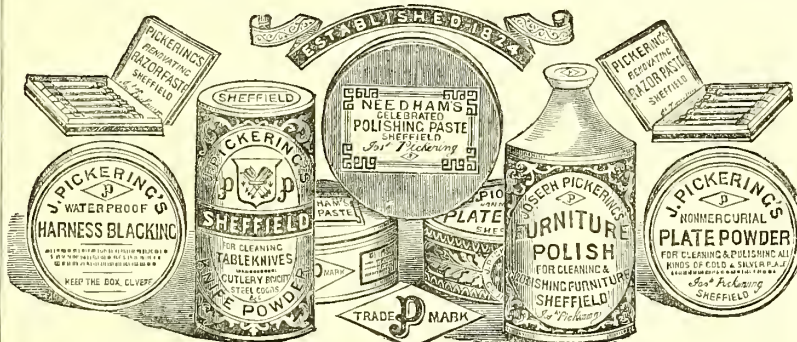
Superior Lavender Soap, in boxes, 3 tablets (1/ and 1/6) 8/ & 12/ "

White Glycerine Soap, in boxes, 3 tablets (1/6) 12/ "

Dog Soap (Illust. Wrapper), Carpet & Cloth Soap, Pumice Stone Soap (6d. & 1/6) ... 3/6 & 7/ doz.

Needham's**Polishing Paste,**For Cleaning Brass,
Copper, and Britannia
Metal Goods, &c.**Pickerings' Razor****Paste,**

For Sharpening Razors, &c.

Waterproof**Black Blacking,**For Black Leather
Harness.DIPLOMA OF MERIT, VIENNA EXHIBITION, 1873.
Joseph Pickering & Sons (J. Needham), Albion Works, Sheffield,
MANUFACTURERS OF

SOLD BY ALL CHEMISTS, GROCERS, IRONMONGERS, ETC.

Sheffield Knife**Powder,**For Table Knives, Fire
Irons, &c.**Plate Powder,**For Electro-plated
Articles, &c.**Furniture Polish,**For cleaning French
Polished Furniture, &c.**Brunswick****Black,**For all kinds of
Iron Work.**H. BESSEMER'S GOLD PAINT,**

RETAIL PRICES:—

Small Bottles of Gold with Liquid 1s. 6d.

Medium " " & Bowl & Brush 2s. 6d.

Large Bottles of Gold 3s. 6d.

" " Liquid 0s. 6d.

To be obtained of all Chemists, Artists' Colourmen, and
Druggists' Sundriesmen.**NEW 1/6 & 2/6 PACKETS.**CONTENTS:—1 Bottle Gold Powder, 1 Bottle Mixing Liquid,
1 Mixing Bowl, 1 Brush, in Cardboard Box.Where the Bowl and Brush are not required, the usual 1/6 Packet should
be purchased, as it contains a large quantity of both Gold and Liquid.COPPER AND SILVER PAINT, AT THE SAME PRICES, AND YIELDING EQUALLY
GOOD RESULTS, CAN BE OBTAINED.

SOLE PROPRIETOR AND MANUFACTURER,

RICHARD J. ALLEN,
MANSFIELD PLACE, KENTISH TOWN,
LONDON, N.W.Translations are supplied, Circulars, Cards, or Labels will be printed in
any language necessary for its sale.**OKELL'S ORIGINAL
MONA BOUQUET**

Retail, 1/6, 1/9, and 3/6; Wholesale, 9/6, 15/6, and 30/ per doz.

This much-admired Perfume (prepared by the Widow of the late
Joseph Okell), may be obtained from the leading Patent Medicine
houses, Wholesale Druggists, and Druggists' Sundry Dealers.Applications for WHOLESALE Agencies to be made to the SOLE
AGENTS, **THOMAS WEST, Chemist, Stretford,**
Manchester.**Goddard's
Plate Powder**For more than a Quarter of a Century this Powder has sustained an
unrivalled reputation throughout the United Kingdom and the Colonies as
the BEST and SAFEST article for Cleaning Plate.

Sold in Boxes, 1s., 2s. 6d., and 4s. 6d. each. Also

GODDARD'S FURNITURE CREAM. Sold in Bottles, 6d. and 1s. each.

Sold by leading Wholesale Houses and Factors, and by the Inventor,

J. GODDARD STATION STREET, LEICESTER.**FOR CLEANING PLATE.****BRADLEY & BOURDAS'S****ALBATUM or WHITE ROUGE,**

For Cleaning Gold, Silver, and Plated Goods.

Since its introduction as a substitute for the ordinary Rouge,
a quarter of a century ago, the sale has amazingly increased
both at home and abroad. A trial is only needed to prove its
superiority over other plate powders in use. Sold in Boxes at
1s. and 2s.; Tins, 6s. 7 Pont Street, Belgrave Square,
and 48 Belgrave Road, London, S.W.**Dr. C. R. Coffin's AMERICAN DENTIFRICE.**Prepared only by **WILLIAM DARLING, Chemist, Manchester.**
May be had from **S. Maw, Son, & Thompson; Barclay & Sons;**
F. Newbery & Sons; Sanger & Sons; and any Wholesale
House in London. Price 2s. per Box, and Family Jars 10s.
each.

THE CONDY'S FLUID CO., FALCON ST., E.C.

PROPER COMPOSITION.

In contradiction to the extraordinary statement made by Mr. Condry that "GENUINE CONDY'S FLUID IS NOT AND NEVER WAS COMPOSED OF PERMANGANATE OF POTASH," The Condry's Fluid Co. insist that Genuine Condry's Fluid (Crimson) IS and SHOULD BE composed of Pure Permanganate of Potash, in accordance with the Patent Specification and the principal Medical and Chemical authorities, as well as with the declarations of composition issued by the late Bollmann Condry partnership firm, wherein the description ran as follows:—"Condry's Fluid (Permanganate of Potash) . . . Permanganate of Potash (Condry's Fluid) . . . H. B. Condry."

CONTINUED REDUCTION $\approx$ TRADE PRICES

THE CONDY'S FLUID CO., FALCON STREET, E.C., maintain the following Reductions in the Trade Prices of their genuine articles, which can always be relied upon as being of full strength and perfect purity:—

CONDY'S PATENT FLUID (Crimson), 1s. size, 6s. per doz.; 2s. size, 12s. per doz.; 4s. size, 24s. per doz.

CONDY'S PATENT OZONISED WATER, 2s. size, 12s. per doz.; 3s. 6d. size, 20s. per doz.

CONDY'S PATENT FLUID (Green), CONDY'S REMEDIAL FLUID, CONDY'S HEALTH POWDER, CONCENTRATED VINEGAR, &c., as before.

LIBERAL TERMS TO WHOLESALE AND EXPORT BUYERS.

N.B.—In ordering through the Trade, please NOTE THE ADDRESS, FALCON ST., and specify our articles at REDUCED TRADE PRICES, which are listed by all Wholesale Houses less their usual discounts. THEY ARE MADE IN STRICT ACCORDANCE WITH THE PATENT, ARE UNIFORMLY UP TO STRENGTH, free from impurities and sediment, securely corked, and always give satisfaction alike to consumer and to dealer. THEY ARE GUARANTEED BY THE ORIGINAL LABELS OF THE LATE FIRM WITH PRIZE MEDALS AWARDED AT INTERNATIONAL EXHIBITIONS, the unwarranted use of which is a misdemeanor, and the right to which is confirmed to the Company by Decree.

THE CONDY'S FLUID CO., FALCON ST., E.C.

A. D. MITCHELL, Managing Partner.

N.B.—ASK FOR THE LABEL WITH ALL PRIZE MEDALS, AND SEE THAT YOU GET IT.

THE CONDY'S FLUID CASE.

FINAL DEFEAT of MR. H. BOLLMANN CONDY.

FAILURE AND EXPOSURE OF THE "TRAP TO CATCH CHEMISTS."

CONDY v. MITCHELL.

COURT OF APPEAL, LINCOLN'S INN, Nov. 27, 1877.

LORD JUSTICE JAMES (without needing to hear defendant's counsel) said—That such a suit should have been instituted at all was very remarkable; but that, after the learned Vice-Chancellor's judgment, this appeal should have been brought on was particularly strange. Dr. Mitchell had obtained his right by payment of a substantial money consideration, and CONDY'S FLUID AND CONDY'S OZONISED WATER WERE AS MUCH HIS PROPERTY AS THE PLAINTIFF'S. Having that right, Dr. Mitchell was entitled to set up the Condry's Fluid Company.

LORD JUSTICE BAGGALLAY was of the same opinion. The style of the partnership had been "Bollmann Condry & Co.," and the plaintiff set up in his own name of "H. Bollmann Condry." It was not necessary to consider whether he might have been restrained from so doing; but he came into court with a very bad grace. To get evidence he had resorted to what was, in fact, a TRAP TO CATCH CHEMISTS.

LORD JUSTICE THESIGER was also of that opinion; and especially as to the character of the plaintiff's evidence. A good deal of it seemed to him not admissible at all.

LORD JUSTICE JAMES: APPEAL DISMISSED WITH COSTS.

CALVERT'S CARBOLIC ACID.

FOR MEDICINAL USE.

No. 1 quality ... 1, 2, 4, 8, and 16 oz. bottles; in 6 lb. bottles, 6/ per lb.
12/ 16/ 28/ 48/ 80/ per dozen. To retail at 1/6 2/ 3/6 6/ 10/ each.

FREE FROM TARRY TASTE AND SMELL.

No. 1 Acid is an extra refined quality, specially manufactured for internal purposes.

No. 2 quality ... 8/ 12/ 20/ 32/ 52 per dozen. To retail at 1/ 1/6 2/6 4/ 6/6 each.
In 6 lb. bottles, 4/ per lb.

No. 2 Acid is of strength named in B.P., but of special purity, and most suitable for surgical use.

Commercial, Glacial, and Fluid Acids can be supplied at special rates in quantity.

FOR DISINFECTING PURPOSES.

No. 3, Glacial Acid, Commercial Grade, 16 oz. bottles. Fusing point 95° F... 24/ per dozen.

No. 4 quality, Carbolic Acid, 16 oz., 2/6 bottles, perfumed, for indoor use ... 20/ per dozen.

No. 5 " in 8 oz. and 16 oz. ribbed bottles ... 8/ and 12/ per dozen; retail at 1/ and 1/6 each.

No. 5 " in bulk ... 4/ per gallon; 6/ per gallon.

No. 5 " Carbolic Acid, $\frac{1}{4}$, $\frac{1}{2}$, 1, and 2 gallon round tins. Trade Mark sealed ... 20/ 36/ 60/ and 114/ per dozen.

For Export—square $\frac{1}{2}$ and 1 gallon tins, 39/ and 66/ per dozen; and 5 and 10 gallons sealed Drums.

No. 5 Acid, in solidified and portable safety tablets, 1/ and 1/6 boxes of 12 and 20 tablets, 8/ and 12/ per dozen boxes.

No. 5 Acid is guaranteed to contain 85 to 90 per cent. of Carbolic and Cresylic, free from Tar Oils and Sulphuretted Hydrogen, and it is a powerful Disinfectant when very freely diluted.

Cattle and Dog Wash, for Mange, &c., 8 and 16 oz. bottles (an effective remedy, easily applied) ... 8/ and 12/ per dozen.

Crystal or Fluid,
as required.

CARBOLIC ACID POWDER

(15 % Carbolic and Cresylic Acid).

In $\frac{1}{2}$, 1, and 2 lb. Tin Dredgers, 4/ 8/ and 12/ per dozen; to retail at 6d., 1/ and 1/6 each; in $\frac{1}{4}$ and $\frac{1}{2}$ cwt. cases, 6/ and 10/ retail; 48/ and 90/ per dozen. And in bulk, 12/6 per cwt.; retail 17/6.

The Powder is specially adapted for general use, and it has been very strongly recommended by the Medical Officers of Health for Liverpool, London, Bristol, Glasgow, Bombay, &c., &c.

N.B.—Calvert's Carbolic Powder is guaranteed to contain 15 per cent. of real Carbolic and Cresylic Acids (free from Tar Oils). It will be found cheaper in the using than Disinfecting Powders offered at less rates and without guarantee of strength, as much less quantity is needed to obtain satisfactory results.

CARBOLIC ACID SOAPS.

Medical quality, 1/ tablets, 1 and 3 tablet boxes (20 per cent. Acid).	For cure of Skin Diseases ...	8/ per dozen tablets.
Toilet " 6d. " 3 tablet " (10 per cent. Acid) ...	...	12/ " boxes.
Nursery Soap, pleasantly perfumed, 1 tablet " (5 per cent. Acid) ...	...	6d. 4/ " "
Household or Toilet Soap, 6d. and 1/ bars ...	Much used against Prickly Heat	4/ and 8/ per dozen.
Shaving and Tooth Soap, 6d. and 1/ sticks ...	...	4/ and 8/ " "
Domestic Soap, 1 lb. 6d. bars ...	In free boxes of 12, 24, and 28 bars ...	46/8 per cwt.
Laundry Soap, 1 lb. 4 $\frac{1}{2}$ d. bars ...	In free 28 lb. and 56 lb. boxes ...	37/6 " "
Dog Soap, 6d. tablets ...	...	4/ per dozen.

SOFT SOAP, for Mange, Greasy Heel, or Parasites on Cattle, and to keep Flies and Insects off Animals, &c., 33/ per cwt., in $\frac{1}{4}$, $\frac{1}{2}$, 1, and 2 cwt. casks (package chargeable). 1 lb. 1/ jars, 8/ per dozen; 2 lb. 2/ jars, 15/ per dozen; 4 lb. 3/ jars, 24/ per dozen; 7 lb. 5/ jars, 40/ per dozen.

The Medical Soap for Skin Diseases was most favourably reported on by Dr. Erasmus Wilson, F.R.S.

The Toilet and Household Soaps are agreeably scented, and well suited for general Toilet or Bath purposes.

CARBOLIC TOOTH POWDER (Perfumed), 1/ boxes, 8/ per dozen.

CARBOLIZED 10 % TOW (for Dressings). $\frac{1}{2}$ lb. 1/ packets, 7/6 per dozen; 1 lb. 1/6 packets, 12/ per dozen; bulk, 9d. per lb.

CAMPHORATED CARBOLIC OINTMENT (for Burns, Chilblains, Piles, &c.), 1/1 $\frac{1}{2}$ 2 oz. pots, 10/6 per dozen.

CARBOLIC ACID SHEEP WASH, 4/4 per gallon. A certain cure for Scab. For some time used with great success in California, Australia, New Zealand, South Africa, Russia, and South America.

PURE SULPHO-CARBOLATE OF SODA, ZINC, POTASH, OR IRON, 16 oz. bottles, 40/ per dozen; in bulk, 3/ per lb.

SULPHO-CARBOLATE OF LIME, COPPER, OR MAGNESIA, in bulk, 4/ per lb.

F. C. CALVERT & CO., MANCHESTER,

ORIGINAL MANUFACTURERS OF CARBOLIC ACID.

AWARDED the PRIZE MEDAL of the SANITARY INSTITUTE of GREAT BRITAIN.

GOLD MEDALS—Havre & Moscow. SILVER MEDALS—Paris, Havre, & Naples.

DIPLOMAS—SANTIAGO, AMSTERDAM, AND PHILADELPHIA.

N.B.—All the
above Rates
are subject to
the usual
Trade
Discounts.





AUSTRALIAN INTERNATIONAL EXHIBITION, SYDNEY

JOHN RICHARDSON & CO.,

Manufacturing Pharmaceutical Chemists, Leicester, England.

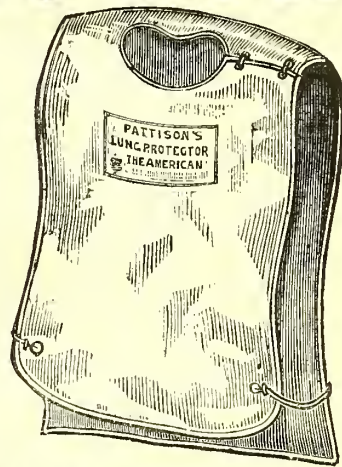
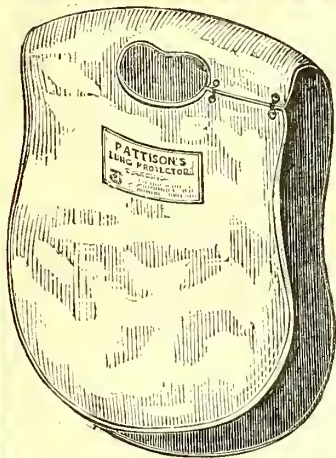
THE LUNG PROTECTOR

(REGISTERED).

Originated, 1864.

ADVERTISED TO THE TRADE, 1866.

The Proprietor respectfully reminds his brother Chemists and Druggists, that the introduction of the LUNG PROTECTOR created a want, and added a handsome line to their returns; they are earnestly requested to protect their own interests by continuing to sell this article, and by refusing to deal in the various imitations its success has called into existence. Many of these imitations are now being made from inferior wools, in which noxious dyes are used, which produce irritation on the skin, thus giving dissatisfaction to the customer, and causing ultimate loss of trade to the dealer.



SIX SIZES ARE NOW MADE.

PRICES:—No. 0, 14/-; 1, 18/-; 2, 26/-; 3, 34/-; 4, 42/-; 5, 52/- per dozen.

Ditto, American shape, five sizes, No. 1, 20/-; 2, 28/-; 3, 36/-; 4, 44/-; 5, 54/- „

FELT CHEST PROTECTORS.

PRICES:—No. 0, 6/-; 1, 8/-; 2, 10/-; 3, 12/-; 4, 16/-; 5, 20/- per dozen.

ALL IN SCARLET OR WHITE.

SPECIAL NOTICE.—The words “Lung Protector” are a Registered Trade Mark. This and all other rights will be strictly protected.

IMITATORS AND DEALERS ARE HEREBY CAUTIONED.

PROPRIETOR AND SOLE MANUFACTURER

GEORGE PATTISON,

139 ST. JOHN STREET ROAD, LONDON, E.C.

Supplied by all Patent Medicine and Wholesale Houses, subject to their usual terms.

YOUNG'S

Arnicated White Felt

CORN AND BUNION PLASTERS.

MANUFACTORY:

72 CLERKENWELL ROAD, LONDON, E.C.,

Lately known as 37 WILDERNESS ROW.

Address Altered by Order of the Board of Works.

PHOENIX ESTABLISHED A.D. 1815 **MARKING INK**
GENUINE INDELIBLE
 THE LEADING & **STANDARD ARTICLE**
 PREPARED ONLY BY THE WIDOW OF THE LATE
JOHN MURPHY
 CHEMIST AT THE ORIGINAL ESTABLISHMENT
 11, NILE STREET, EAST ROAD, HOXTON, N.




NO OTHER ADDRESS — BEWARE OF WORTHLESS IMITATIONS.

FOULKES' CEMENT.

AS USED AT ALL THE GOVERNMENT MUSEUMS.

Suited for any substance, from glass and china to leather, wood, or iron, and the articles joined bear washing in boiling water. The large range of materials to which this cement is applicable, its transparency, strength, and facility in use, and the readiness with which it adheres renders it, without doubt, **THE MOST USEFUL EVER INVENTED.** It is equally applicable to articles of the coarsest or the most delicate construction. The great success which attended its introduction, now more than 20 years ago, has given rise to a host of imitations, under as many various titles some of these being of an exceedingly crude character, and most unsatisfactory to both vendor and buyer. The above celebrated Cement is uniformly prepared and neatly put up, and is guaranteed to remain unchanged in any climate.

Professor ARCHER, C.B., F.R.S., &c., Edinburgh. — "I can testify most unhesitatingly to its great utility in the various occasions which continually arise in Museum work for a first-rate Cement. I have invariably found yours superior to all others, and have extensively recommended its use to all my friends."

Sold in bottles at 1s. and upwards; sample bottles, 6d.

FOULKES' TOILET & NURSERY POWDER.

IMPALPABLE AND DELICATELY PERFUMED.
 This unique Powder possesses the emollient properties of fullers' earth, free from colour, and in a high condition of purity.

Sold in boxes at 1s. and 6d. Wholesale at the Patent Medicine Houses and Druggists' Sundries Men, or from
W. J. FOULKES, Operative Chemist, Birkenhead.



RIMMEL'S NEW SANITARY APPLIANCES.

RIMMEL'S AROMATIC OZONIZER, a fragrant powder which, simply spread on a plate in apartments or places of public resort, evolves the refreshing and healthy emanations of the Pine and Eucalyptus, and produces a quantity of *Ozone*, the great air purifier. It is in use in the principal Hotels, Clubs, and Theatres, and also in the Saloons and Cabins of several Lines of Steamships. In 4 oz. tins, 1s.; by post for 15 stamps; 1 lb. tins, 3s. 6d.; Spreading Plate, 6d.

RIMMEL'S OZONIZED PERFUMERY.

DR. DAY, of Geelong, who has devoted much time and attention to sanitary questions, has discovered that alcoholic perfumes form excellent vehicles for diffusing ozone in the atmosphere and destroying noxious emanations and miasma. At his suggestion, E. Rimmel has prepared a series of Toilet Waters (Eau-de-Cologne, Lavender, and Florida), which are oxygenated by a chemical process, and evolve a quantity of *Ozone*. They are strongly recommended to be used on the handkerchief when attending crowded places, visiting the sick, or travelling by land or sea; also to be sprinkled on beds or carpets, or on a pad hung up in the air. Dr. Day writes to E. Rimmel (November 28, 1877):—"In manufacturing and making known the hygienic value of oxygenated perfumery you will be conferring a great benefit to the public, for it is the best means of disinfecting bedrooms, closets, &c."

PRICES:—Rimmel's Ozonized Eau-de-Cologne } 4 oz. round bottles 2s. 6d.
 Rimmel's Ozonized Lavender Water } 8 do. do. 5s. 0d.
 Rimmel's Ozonized Florida Water } 16 do. do. 9s. 0d.

Sanitary Pads to be impregnated with the above and hung up in the air, 1s. The usual allowance to the Trade. Wholesale Lists on application to

EUGENE RIMMEL, Perfumer by Appointment to H.R.H. the Princess of Wales,
 96 STRAND LONDON.

WHITE AND SOUND TEETH.

JEWSBURY AND BROWN'S ORIENTAL TOOTH PASTE.

This old-established and increasingly favourite Dentifrice has been Forty Years before the Public. It is warranted to retain its properties and keep in good condition in any climate.

The original and only genuine is manufactured solely by

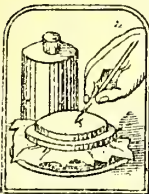
JEWSBURY and BROWN,
CHEMISTS, MANCHESTER,

and is distinguishable by the Trade Mark, printed in red and green, a facsimile of which is annexed. Particular attention should be paid to this guarantee of genuineness, as numerous imitations are offered.

Sold universally by Chemists and Perfumers, at 1s. 6d. and 2s. 6d.



The Trade and Shippers supplied by the leading houses in London and elsewhere. Bills and Show Cards forwarded on receipt of address card, and directions for enclosure.

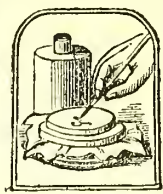


GREAT REDUCTION OF PRICES.

6d. and 1s. PEDESTALS, Glass Cases included.

20 per cent. off £100 Orders.

10 " " " £50 "



CAUTION

I AM DETERMINED TO PREVENT IN ALL CASES EVERY COLOURABLE IMITATION TO PROTECT MY RIGHTS & PROPERTY.

WRIT OF INJUNCTION GRANTED NOV. 28, 1877.

COMMON PLEAS DIVISION,
JAN. 15.

(Sittings before Lord Coleridge and
Justices Grove and Denman.)

RICKISSON v. ASHTON.

Defendant moved for a NEW
TRIAL.

Application REFUSED.

This action, which was brought for
the alleged infringement of the Plain-
tiff's Trade Mark, was tried at the last
sittings at Guildhall, before Mr. Baron
Cleasby, when the verdict was for the
Plaintiff with damages.

The PLAINTIFF was the HUS-
BAND of the DAUGHTER of the late
JOHN BOND, the PROPRIETOR
of BOND'S CRYSTAL PALACE
MARKING INK. The Defendant
was a Druggist, and he had sold a
Marking Ink manufactured by a Mr.
Murphy, and the Plaintiff complained
that the Labels on Murphy's Ink were
an infringement on his Labels. A
TRADE MARK is not only a SYM-
BOL or CHARACTER, but the general
appearance of a label, whereby
the public would be deceived.

Their Lordships this morning, after
consulting Mr. Baron Cleasby on the
matter, refused the rule, that learned
judge having expressed his satisfaction
with the verdict. — RULE REFUSED.
Vide daily papers.

ANOTHER GOLD MEDAL AWARDED,

PARIS ACADEMIE.

For Merit and Superiority of Finish, 2nd Award.

PRIZE MEDAL, PARIS, 1878, 2ND AWARD.

3 Gold and several Silver and Bronze Medals.
Hon. Mention, Paris, 1878.

PRIZE MEDAL AND GRAND DIPLOMA,
8 Medals.] PHILADELPHIA EXHIBITION, 1876. [7 Diplomas.

PURVEYOR TO THE LORDS COMMISSIONERS OF THE ADMIRALTY.

CAUTION.—The only GOLD Medal Marking Ink. Gold
and Silver Medals and Diploma, Silver Medal and Diploma, London.
Prize Medal, Lyons, Certificate of Merit, signed Albert
Edward, Prince of Wales; and Dublin Diploma. Marking Ink
Maker under Royal Warrant to Her Majesty the Queen and
Court of Holland.

GOLD MEDAL, SOUTH AFRICA, 1877.

HONOURABLE MENTION and ESPECIAL NOTICE from
the FRENCH PRESIDENT and H.R.H. the PRINCE OF
WALES, Paris Exhibition, 1878.

HONOURABLE MENTION and DIPLOMA awarded by the
JURORS, 1878.

SECOND GOLD MEDAL awarded by the PARIS ACADEMY,
1878, for Merit and Superiority of Production.

J. HICKISSON, Proprietor of the Daughter of the late John Bond's
Crystal Palace Marking Ink, 75 Southgate Road, London.

BOND'S MARKING INK.

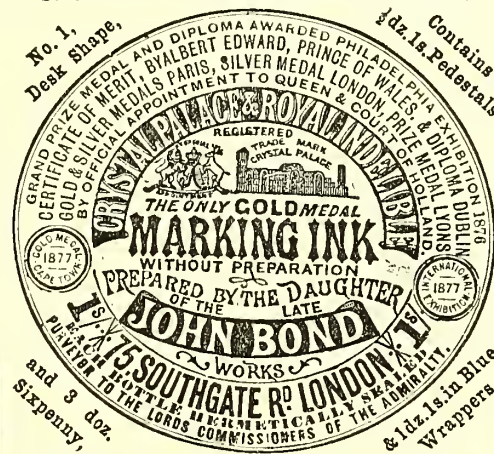
CAUTION to Wholesale
and Retail Vendors.—TAKE
NOTICE that on Nov. 26th,
1877, IN AN ACTION
"HICKISSON & ANO-
THER against MURPHY"
JUDGMENT was given
for PLAINTIFFS, WITH
DAMAGES AND COSTS,
AND A PERPETUAL IN-
JUNCTION GRANTED
RESTRAINING the said
MRS. MURPHY and her
AGENTS FROM USING
the word "BOND" upon
any labels or pedestals
manufactured by or for her,
OR FROM IN ANY WAY
REPRESENTING THE
INK MANUFACTURED
BY HER TO BE BOND'S
MARKING INK.

GRANTED NOV. 28, 1877.

WRIT OF INJUNCTION

- 6d. Bottles in Round Blue Cases (Grand Show Card enclosed with each Packet of one dozen) ... 30s.
1s. Do. do. do. (Handsome Show Card enclosed with each dozen) ... 60s.
6d. Round Blue Wrapper upon Show Card of one dozen ... 30s.

FACSIMILE OF THE GENUINE LABEL.



DEAR HICKISSON, —
Send on receipt the £200
order, as we are much increas-
ing our trade by pushing your
Ink in place of useless
Novelties, as some other
Wholesale Houses are send-
ing other Makers', and there-
by the Retail are closing
their accounts. The 50 No. 1
Glass Cases are sold. Repeat
order immediate.—Yours,
BROWN & CO.

29/4/78.

No Heating Required
if allowed to remain
three hours previous to
Washing.

Where
are the Thousand
that have expended
and One would-be Makers
entirely lost large sums in trying
to oppose this old-established preparation?
Chemists, return all others forced
upon you, and do not offend
a Customer by sending
a would-be
substitute.

Have you seen the New
Black and Gold Glass Cases
with Hinged Black and Gold
Framed Linen Specimen of the
Crystal Palace with elaborate
GOLD Mounts?

No
Business
transacted
on
Saturdays.

- No. 2 CASE, containing 3 doz. 1s., Crystal Palace and Royal Indelible, Blue Wrapper, Black and White Oval
Label, old style. 16s. each.
No. 3 CASE, containing 1 doz. 1s., Crystal Palace and Royal Indelible, Blue Wrapper, old style, and 2 doz.
6d., do. do. 11s. each.
No. 4 CASE, containing 3 doz. 6d., Crystal Palace and Royal Indelible, Blue Wrappers, Black and White Oval
Label, old style. 8s. 6d. each.

CAUTION I WILL PROSECUTE IN EVERY CASE OF MIS-
REPRESENTATION OR COLOURABLE IMITATION

No
Business
transacted
on
Saturdays.

G. F. SNOOK & SON, Wholesale & Export Manufacturers.

SNOOK & SON'S ARNIGATED FELT CORN & BUNION PLASTERS.

SNOOK & SON'S WHITE-SPREAD CORN & BUNION PLASTERS.

SNOOK & SON'S Pure Starch Violet Powder, each Packet, with guarantee, in Show Boxes for the Counter.

SNOOK & SON'S 1d., 3d., and 6d. FULLER'S EARTH.

SNOOK & SON'S "INSECTO," the most effectual exterminator of all kinds of Insects, 3d. and 6d. for Show Boxes for the Counter.

Any of the above goods may be had through all Wholesale Houses. Price Lists or Samples free per post on receipt of Business Card.

SPECIAL QUOTATIONS TO LARGE BUYERS.

376 CITY ROAD, LONDON, E.C.

AWARDS :
London and
Vienna
Exhibitions

Wood Stains,

AWARDS :
London and
Vienna
Exhibitions

IN LIQUID AND POWDER.

Packed in 1-lb., $\frac{1}{2}$ -lb., $\frac{1}{4}$ -lb., and 2-oz. Boxes, $\frac{1}{2}$ -pint 6d. Bottles, and bulk.

Specimen Boards and Circulars supplied when ordered.

MANUFACTURER,

THOMAS S. JACKSON,

199 BOROUGH, LONDON, S.E.,

And of all Patent Medicine Warehousemen. Write for New Price Lists of Oil and Spirit Varnishes, Colours, Paints, &c.

TRADE MARK



P. A. STEVENS, Chemist and P. Dentist, 70 HYDE ROAD, HONKON, LONDON, N., Sole Proprietor and Maker of the **SILVERY WHITE GUTTA PERCHA ENAMEL** for Stopping Decayed Teeth.

P. A. S. is prepared to supply the above to Wholesale Houses and Chemists, in any quantity, with their name stamped upon each stick, cut any length.

To be obtained of all Wholesale Houses. Price List and Samples sent post free.

SPECIAL NOTICE.—The words **SILVERY WHITE GUTTA PERCHA ENAMEL** are registered as a Trade Mark, and will be protected.

TRY IT! SPANISH

In Bottles,

Unrivalled for RESTORING HAIR, RENEWING, CLEANSING, THICKENING, and PREVENTING the Hair

Of Messrs. Low & Haydon, 330 Strand, London; Barelay & Sons, 95 Farringdon Street, London; of any Chemist or Hairdresser; or of A. P. Muddiman, Leighton Buzzard, Beds.



IT NEVER FAILS! WASH!!

2/6 & 5/- each.

from FALLING OFF or Turning Grey, instantly removing all Scurf or Dandruff, leaving the skin pure and healthy.

ROUND AND OVAL CHIP AND WILLOW BOXES

Of any size, in the very best quality that can possibly be made. Large stock kept in London. Any buyers of these goods should compare my Samples and Prices before ordering elsewhere.

PAUL METZ, Manufacturers' Agent,

19 & 20 HAMSELL STREET, FALCON SQUARE, LONDON, E.C.

Bankers, London and Westminster Bank, Lothbury, E.C.

WOODS' ARECA NUT TOOTH PASTE.

For Removing Tartar and Whitening the Teeth, without injuring the Enamel. Sold in Pots, at 6d. and 1s. each.

WOODS'

QUININE, CANTHARIDINE, & ROSEMARY HAIR CREAM

(WITH GREASE), Restores the Hair if weak or falling off. Price 9d., 1s. 6d. and 3s. 6d. per bottle.

WOODS'

QUININE, CANTHARIDINE, & ROSEMARY HAIR WASH

Similar to the above (without grease). Price 1s. 6d. and 3s. 6d. per bottle.

WOODS' DANDRUFF POMADE.

Never fails. 1s. per pot.

Proprietor: W. WOODS, M.P.S., Chemist, Plymouth.

SOLD WHOLESALE BY ALL LONDON HOUSES.

W. S. YATES,

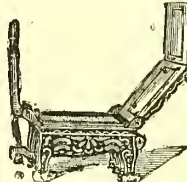
Chemists' Shop Fitter, Shop Front Builder, and Glass Show Case Maker.

PLANS AND ESTIMATES SUPPLIED FOR WORK IN ANY PART OF THE KINGDOM.

9 CAMDEN STREET LIVERPOOL.

INTERNATIONAL EXHIBITION, 1870.

283, CLASS 3.



Every Man his own Printer

PRINTING PRESSES (all Iron) 25s.

complete, to £10 10s.

Specimens of Work, One Stamp.

Inventor

JABEZ FRANCIS, Rochford, Essex.

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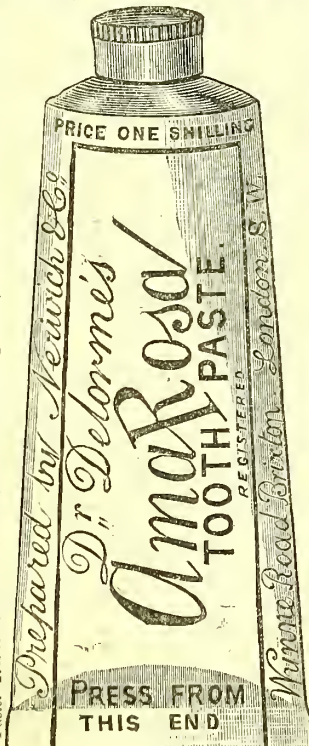
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ADVANTAGES.—By our manner of putting this Paste up in collapsible tubes instead of pots, all the aromatic and antiseptic qualities of the Paste are preserved—and the tubes being so small, the Paste cannot become dry or hard, and is always ready for use, as the exact quantity can be pressed out on the brush. The quantity contained in these tubes is greater than a pot of corresponding price.

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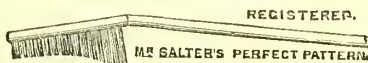
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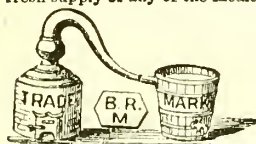
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	Per lb.		Per lb.		Per lb.		Per lb.
Aqua Anethi, Concent.	4/0	Aqua Cinnam. Ver. Concent.	6/0	Aqua Fœniculi, Concent.	4/0	Aqua Pimentæ, Concent.	4/0
" Anisi, "	4/0	" Cassia "	4/0	" Menth Pip. "	4/0	" Rosæ "	8/6
" Camphoræ "	4/0	" Flor. Aurant. "	8/6	" Ang. Con. "	6/0	" Rosæ Virgin "	10/6
" Carui "	4/0	" Flor. Sambuci, "	8/6	" Virid. "	4/0		

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Crude Glycerine, in Bulk.

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Transparent Glycerine Soap,

In registered Packets of three Tablets, 1s. Warranted to contain 33% of the purest Glycerine. Also in round Tablets, three in a Box; and in oval Tablets in paper.

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Best preventive against chapped hands, 1s., and unrivalled for imparting softness to them, and rendering them clean and white. See Testimonials of Professor J. von Liebig, Baron; and of Professor F. Wöhler.

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In Boxes of three Tablets, is highly recommended as a most effective disinfectant.

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In Bottles at various prices. Either pure or diluted with water, this Glycerine is very successfully used for softening the skin, preserving the complexion, and preventing the very unpleasant roughness of the skin in cold weather.

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Is quite unequalled for imparting a fresh and healthy colour to the lips and keeping them from chapping.

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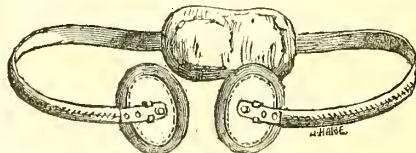
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Patentee,

33 ST. PAUL'S ROAD, CANONBURY, N.



FIG. 5.



SUSPENSORY BANDAGES—continued.

No.				
6.	Silk Oxonian, superior quality, bands of buff jean, with drawing-strings	per doz.	£1	4 0
7.	Silk Bags, to button on, with tape under-straps..	"	1	1 0
8.	" " " under-straps to button	"	1	4 0

ELASTIC STOCKINGS, KNEE-CAPS, ETC

Manufactured expressly for Export, and warranted to stand a hot climate better than any others in the Market.

<i>Manufactured expressly for Export, and warranted to stand a hot climate better than any others in the Market.</i>			Silk.		Super. Silk.		Cotton.		Super. Cotton.					
			£	s. d.	£	s. d.	£	s. d.	£	s. d.				
Stockings	..	.. pair	0	9	0	13	6	5	3	0	6	6		
Knee-caps	..	.. "	0	6	0	9	6	3	6	0	5	0		
Calf-pieces	..	.. "	0	6	8	0	9	0	4	0	5	6		
Socks	..	.. "	0	5	0	7	6	0	3	3	0	4	6	
Wristbands	..	.. "	0	2	0	—	—	0	1	6	0	2	0	
Knee Stockings	..	.. "	0	15	0	1	3	0	0	8	9	0	11	6
Belts, to draw on	..	.. each	0	15	0	1	1	0	—	—	0	9	0	0

No.	SUSPENSORY BANDAGES.			
1.	Cotton Bags and tape under-straps ..	..	..	per doz. 0 8 0
2.	Cotton Oxonian, with drawing-strings ..	..	..	" 0 10 0
3.	Silk Bags and tape under-straps ..	..	..	" 1 1 0
4.	Silk Oxonian, with drawing-strings ..	..	..	" 0 18 0
5.	" " Bags bound with elastic ..	..	..	" 1 4 0

The above may be obtained direct from the Manufacturers, or from their Wholesale and Export Agents,
Messrs. Barclay & Sons, 95 Farringdon Street.

LINDSEY & SONS,
EXPORT
TRUSS & BANDAGE MANUFACTURERS,
62 LUDGATE HILL,
AND
40 GRACECHURCH STREET, LONDON, E.C.
NETT PRICES.—1879.

COMMON PRINCIPLE TRUSSES, Basil and Chamois										Per dozen.	SALMON & ODY'S EXPIRED PATENT, <i>Single</i> , White or Red Roan ..										Per dozen.
Ditto Mole Lined										18/ 0	Ditto Calf and Silk sewn										1 10 0
Ditto White or Red Roan										1 4 0	Ditto <i>Double</i> , Basil and Chamois £2 2s. and ..										2 8 0
Ditto Calf Covered, Silk Sewn										1 10 0	Ditto „ White or Red Roan										2 14 0
DOEBLE TRUSSES, COMMON PRINCIPLE, covered Basil and Chamois ..										1 4 0	Ditto „ Calf, Silk sewn										3 0 0
Ditto Mole Lined										1 6 0	VERY NARROW, SALMON & ODY'S PRINCIPLE, as "Wickham's," a Superior Truss, <i>Single</i>										2 14 0
Ditto White or Red Roan										1 10 0	Ditto <i>Double</i>										5 8 0
Ditto Calf and Silk sewn										1 15 0	COLE'S EXPIRED PATENT TRUSSES, <i>Single</i> , covered best Doeskin 48/ and ..										3 0 0
SINGLE CIRCULAR, VERY LIGHT AND NARROW SPRING, imper-ceptible—											Ditto <i>Double</i> , covered best Doeskin 96/ and ..										6 0 0
Plain, <i>Single</i>										1 12 0	MOC-MAIN TRUSSES, Plain, Stuffed real Moe-Main— as White's, £3 12s. Double ..										7 4 0
Best Covered, <i>Single</i>										2 5 0	Ditto Sunk Springs, ditto— as White's, £5 8s. Double ..										10 16 0
Plain, <i>Double</i>										2 2 0											
Best Covered, <i>Double</i>										2 16 0											
SALMON & ODY'S EXPIRED PATENT, <i>Single</i> , Basil and Chamois ..										1 4 6											

LINDSEY & SONS' Trusses have long maintained a high reputation for quality, and they will be happy to send their full descriptive price list on receipt of address, post free.

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"Kepler's Malt Extract is very good, and may be used with confidence."—THE LANCET.

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"FELLOWS."

A DISTINCT AND PECULIAR COMBINATION.

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PEPSIN OF B.P. STRENGTH.

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PALATABLE, SOLUBLE, ECONOMICAL.

MANUFACTURED FOR THE WHOLESALE AND EXPORT DRUG TRADE.

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Warranted to keep in any Climate, and for any time, or money refunded. The Best and Cheapest PEPSIN in the Market.

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Oleum Morrhuae cum Extr. Malti "KEPLER."

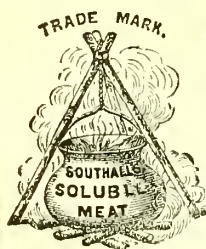
The Best Food for producing Fat and Muscle. Much more effective and digestible than plain oil.

"Has wonderfully little of the disagreeable taste of the oil."—THE LANCET.

"Probably no one will find any difficulty either in taking or digesting it."—MEDICAL PRESS.

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THE ONLY ENGLISH AWARD.

Contains the fibrin and the whole of the meat; is therefore a nourishing food. Is in a state ready for absorption by the stomach and intestines. Invalids whose digestive organs are impaired can by it obtain substantial food. Pleasant to the taste, and readily prepared for use.

The Editor of THE LANCET says:—"Soluble meat is a condensed extract, containing albuminoids as well as the ordinary extractives of flesh. It is of course a true flesh-forming food, as well as a powerful stimulant. The real value of the preparation will be admitted by all."—LANCET, April 12, 1879.

The Editor of THE BRITISH MEDICAL JOURNAL says:—"This soluble meat is a preparation based on the principle which is in accordance with the opinions of those physiologists who are of opinion that beef-tea should be not merely a stimulant, but,

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in the fullest sense of the word, a nutritive. It contains not only the organic salts, extractive and flavouring matters, together with the mineral matter soluble in water, but also the fibrine and albumen—the essential flesh-forming matters which are absent in Liebig's extract. It includes also those phosphates which are retained by meat after boiling, and which are not found in the usual beef extracts. This preparation of Southall's (Birmingham) is nourishing and agreeable in flavour."—BRITISH MEDICAL JOURNAL, March 15, 1879.

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See "CHEMIST AND DRUGGIST," December 15th, 1874.

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REMEDIES**

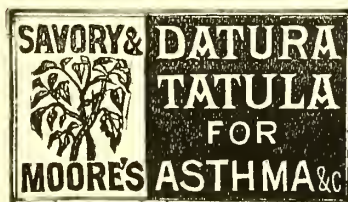
Consist of Small DISCS (SQUARE), impregnated with Alkaloids, etc., and are put up in small boxes, each containing 25 Discs, price 2s. 6d. The chief feature of these Discs is their instant solubility, by which hypodermic solutions can be immediately obtained of uniform and reliable strength; they keep good for an unlimited period in their dry state, and are extremely portable.

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Comprise Minute ROUND Discs impregnated with a definite proportion of Alkaloids, etc., and are issued in small Tubes, each containing 100 Discs, price 2s. 6d. "The little round Discs of soft Gelatine have the advantage of slowly softening and dissolving. The Atropine, or other medicament, gradually dissolves out, and is thus placed under the most favourable circumstances for absorption. Hence much smaller doses serve to produce a marked effect, by this form of application, than when drops are introduced."

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In this number we give much information respecting pharmaceutical, medical, dental, veterinary, and scientific diplomas and education. As parts of the information here collected are often asked about by correspondents during the year, we would ask that those likely to want any of it should keep this number by them for reference.

The British Pharmaceutical Conference held its sixteenth annual session in Sheffield on August 19 and 20, under the presidency of Mr. G. F. Schacht, of Clifton. We give a complete report of the papers read, and the subsequent discussions. The Sheffield chemists provided, for the enjoyment of their guests, an excursion to Haddon Hall and Chatsworth on August 21, and this trip was highly appreciated by the large number of visitors who shared it.

The resignation of Professor Attfield as Senior General Secretary of the Pharmaceutical Conference was announced. Professor Attfield has consented to hold office for one more year. A committee of members has been formed whose object is to raise funds for a testimonial in recognition of the devoted service which Professor Attfield has rendered to the Conference during its 16 years of existence.

The members attending the British Association meeting at Sheffield were much fewer than were present at Dublin

or Glasgow, but were more than were present at Plymouth. The address of the President (Dr. Allman), of which we give a summary, was an able exposition of biological science.

The Pharmaceutical Council met on September 3, but, as the meeting was only *pro formâ*, only a few members attended, and no business of importance was transacted. A communication from the Board of Trade was read, legalising certain standards of apothecaries' weights, but at present the Board has not signified its willingness to undertake the verification of small weights or of glass measures.

Dr. W. A. Tilden will deliver an address to pharmaceutical students, at the Pharmaceutical Society's Theatre, on October 1 at 8 P.M.

The London Medical Schools will open on October 1. Introductory addresses will be delivered—at St. Thomas's by Dr. Robert Cory; at the Middlesex, by Dr. Sidney Coupland; at Charing Cross, by Mr. Francis Hird, the dean of the School; at St. Mary's, by Mr. St. George Mivart, F.R.S.; at the Westminster, by Dr. Dupré, F.R.S., the lecturer on chemistry and toxicology; at St. George's, by Mr. W. B. Dalby, aural surgeon to the hospital; at University College, by Professor George D. Thane; and at King's College, by Professor A. B. Duffin. At St. Bartholomew's and Guy's no addresses will be delivered.

The Council of the Irish Pharmaceutical Society have obtained two convictions in Dublin against persons who, being neither pharmaceutical chemists nor apothecaries, had dispensed "medical prescriptions." The Irish Pharmacy Act prohibits the compounding of medical prescriptions as well as of poisons by all persons other than pharmaceutical chemists or apothecaries. The Council are likely to take up other cases; and it has several times been intimated that they would test the right of a certain well-known limited company in the city to dispense medicines.

The Pharmaceutical Society has prosecuted at Horncastle a village grocer named Robert Croft for selling laudanum not bearing a label with his name and address. The Society forebore to prosecute under the 15th section, which forbids unregistered persons to sell poisons at all, because it is hoped that the 17th section will be enforced by local authorities, now that it is shown that they have the power. The laudanum sold bore the name of "J. H. Elmitt, chemist, Horncastle," and also, it was said, bore a patent-medicine stamp. But neither of these evasions availed, and defendant was fined 2*l.* 10*s.* and 2*l.* 12*s.* 6*d.* costs, an amount which he declared he was unable to raise.

Mr. Hampson, of 205 St. John Street Road, will be glad to receive information of any cases of infringement of the spirit of the Pharmacy Act by the sale of poisons under cover of the patent-medicine stamp, with a view of bringing the matter before the Council.

The Government manufacture of quinine in India realised last year a net profit of 42,412 rupees, or 4¼ per cent. on the capital.

The Liverpool chemists have held a trade meeting to protest against the reduction of prices of proprietary articles. The discussion was based on the conduct of some large firm in the town, but who that was has not been made public.

Jury lists are now exhibited on church and chapel doors. Persons who can claim exemption, as pharmaceutical chemists, dentists, and others, should at once see if their names have been included, in which case they must notify the overseer within a certain period, if they desire to avoid the risk of having to act.

CORNER FOR STUDENTS.

CONDUCTED BY RICHARD J. MOSS, F.C.S.

ANOTHER important mineral will form the subject of the next exercise in Qualitative Analysis. It is to be submitted to a systematic examination, so as to detect accidental impurities as well as its essential constituents. The name of the substance is to be ascertained, and a detailed account of the analysis given.

Students who wish to compete should send in their names and addresses before the 20th inst. Samples of the mineral will be forwarded on the 25th.

Students' reports will be received up to October 15.

CHALK.

The subject of the last exercise was calcium carbonate in one of its native forms—chalk. The foreign substances present were iron, magnesium, and silica, with traces of aluminium, chlorine, and the sulphuric and phosphoric radicals.

This very common, but important, mineral was selected as a good subject for exercising analytical skill in the detection of a small quantity of magnesium in the presence of much calcium, and also in the recognition of silica.

The most casual observer of a chalk cliff must have noticed the numerous flints which are generally exposed to view, usually presenting some symmetrical arrangement. The origin of these masses of silica has given rise to much speculation; whatever the true explanation may be, however, there can be no doubt now as to the origin of the finely-divided silica that is so uniformly distributed throughout the great chalk formations of the globe. Our readers will remember the frequent reference that was made in accounts of the recent *Challenger* expedition to the *Globigerina* ooze that was found by soundings to cover the bottom of such enormous tracts of ocean. This calcareous mud is nothing more than chalk in actual formation. The minute organisms which have given their name to this ocean mud possess a shell composed of calcium carbonate, and identical with the peculiar spherical particles that have long been known to constitute the great mass of the chalk with which we are so familiar. It is now an established fact that *Globigerinae* live and secrete their calcareous shells in the cold, lightless depths of the great oceans, where it was long supposed that the conditions are such as to preclude the possibility of life in any form. So much for the origin of the chief constituent of chalk: its silica has a very different history. All over the surface of the ocean, wherever it has been examined, minute organisms with siliceous skeletons have been found: amongst these are the *Diatomaceae* which present such beautiful structure that they are commonly used for testing the defining powers of microscopes. As these organisms perish their siliceous skeletons, practically insoluble in sea water, sink in the course of time to the bottom, and thus a small but constant supply of silica from the surface of the ocean is showered upon the gradually accumulating carbonate of lime at the bottom. The origin of the iron in chalk is not less interesting, though somewhat more obscure: it would, however, be too great a digression to refer to it here.

The recognition of silica in such a substance as chalk presents but little difficulty: its insolubility in nitric and hydrochloric acids at once distinguishes it from a very large class of substances, and its behaviour with a bead of sodium and ammonium phosphate (microcosmic salt) is highly characteristic, and has the great advantage of enabling one to

operate with very minute quantities. This test, however, like most blow-pipe reactions, requires some practice. We have repeatedly directed attention to the precautions to be observed in testing for magnesium, and it is satisfactory to find the decided advances that many of our contributors have made by the increased care bestowed on this and similar delicate operations. The proportion of phosphoric acid present was small, but it was sufficiently large to be detected by adding two parts of the nitric acid solution of ammonium molybdate to one of a nitric acid solution of the chalk; the mixture being gently warmed a yellow crystalline precipitate separated in the course of a few minutes. This precipitate, after being washed and dissolved in ammonia, gave a solution which yielded the characteristic crystalline precipitate on the addition of a magnesium salt. It is noteworthy that the molybdic solution did not so readily yield a precipitate in a hydrochloric acid solution of the chalk: the presence of hydrochloric acid interferes with the delicacy of the reaction.

PRIZES.

The First Prize for the best analysis has been awarded to R. WRIGHT, 2 High Street, Buxton.

The Second Prize has been awarded to W. CYRIL BIRKS, York.

Marks Awarded for Analyses.

R. Wright (1st prize)	..	..	..	..	..	..	95
W. Cyril Birks	..	..	..	..	..	..	93
J. Harold	..	..	..	..	..	..	90
F. W. R.	..	..	..	..	..	..	85
G. S.	..	..	..	..	..	..	85
D. Hooper	..	..	..	..	..	..	80
C. C.	..	..	..	..	..	..	73
Ferrum	..	..	..	..	..	..	75
Eucalyptus	..	..	..	..	..	..	75
J. Fraser	..	..	..	..	..	..	70
R. W.	..	..	..	..	..	..	70
Servus	..	..	..	..	..	..	65
W. Bamford	..	..	..	..	..	..	50
V. S. G.	..	..	..	..	..	..	25

TO CORRESPONDENTS.

Prizes.—The students to whom prizes are awarded are requested to write at once to the publisher, naming the book they select, and stating how they wish it forwarded.

Any scientific book that is published at a price not greatly exceeding half-a-guinea may be taken as a first prize.

Any scientific book which is sold for about five shillings may be taken as second prize.

* * * All Communications should include the names and addresses of the writers.

G. S.—When you pushed the substance through the filter no doubt a little of the paper was carried with it; this would account for the blackening that led you to conclude that organic matter was present.

D. Hooper.—You obtained no confirmatory evidence of the presence of sulphur. It is true that chalk sometimes contains sulphides in such quantity as to render it useless as a source of carbonic acid for many technical purposes. This specimen, however, was chemically free from sulphides.

C. C.—Your examination of the insoluble portion does not include any test that would detect silica, a substance more likely than any other to constitute part of the residue insoluble in acids.

Ferrum.—Your test for magnesium was evidently not applied with sufficient care; at any rate you do not state that some hours were allowed to elapse before you concluded that sodium phosphate produced no precipitate.

Eucalyptus.—There was certainly more than a trace of magnesium present. It was unnecessary to fuse the substance with sodium carbonate in order to test for sulphuric acid and hydrochloric acid. Of course the hydrochloric acid solution would contain any sulphates present (barium and strontium being absent), and chlorides would be contained in the portion of the substance soluble in water, the heavy metals being absent. Fusion of sodium carbonate may be resorted to when there is no more convenient way of obtaining a suitable solution.

R. W.—The supposed insolubility of a portion of the substance in acetic acid, and its solubility in hydrochloric acid, is not sufficient to establish the presence of an oxalate, as many salts behave in the same way.

Servus.—We could not obtain the slightest trace of a black precipitate with sulphuretted hydrogen; unless your acid contains lead, it would be difficult to account for your results.

V. S. G.—You ought to provide yourself with suitable reagents and apparatus. Any of the instrument makers will supply you with an outfit that will suffice for the most elaborate qualitative analysis for a few shillings.

Pharmacalia.

SOCIETY AND THE PHARMACIST.

THE President of the British Pharmaceutical Conference, Mr. G. F. Schacht, has ventured, in his address at Sheffield, on a hazardous subject, one from which more timid speakers would be inclined to shrink. He endeavoured to present the character of a pharmacist as seen by the world outside, and to describe in what way that character is estimated by what is called society. There are precisely two views under which the subject may be considered: the pharmacist taken as a representative of his art, and the pharmacist as an individual. These two views in all professional life are united; in the trade of pharmacy they are not. As this stumbling-block has never been removed from our mind, and as Mr. Schacht's remarks have in no way tended to its removal, we would rather still have remained silent, and left unnoticed a condition of things for which we can suggest no remedy.

Let us for a moment look at pharmacy from its most attractive aspect.

Less than 40 years ago the British retailer of drugs and medicines had no claim to higher social recognition than that enjoyed by any other honest tradesman. His business was not scientific, and for its exercise he received no special intellectual training. There were to be found certain exceptional men, beyond the age in which they lived, and independent of their surroundings, who were the pioneers of the cultivation of the present day; but the remark still holds good that the way in which pharmacy was pursued did not entitle its followers to any separation as a class.

It would be idle to recount the progressive steps in the direction of improvement which have been made in pharmacy during these past forty years—schools have risen in London and the provinces; systematic education has been introduced; compulsory examination has been instituted; while, in proof that such organisation has not been fruitless, strangers as well as ourselves can see museums, laboratories, libraries, lecture-halls, and public buildings, all consecrated to the advance of pharmacy.

The effect of this visible presentment of advance is undeniable. The world—we mean, with Mr. Schacht, the general, indifferent world, commonly called society—has this phase of pharmaceutical progress forced upon its attention, and it has accepted it as one of the acknowledged circumstances which occur in daily life. The general public has gone even further. A man has a vaguely-defined, but yet comfortable conviction that he may enter any druggist's shop with no fear of being poisoned—that the drugs contained therein are pure, and that prescriptions are accurately prepared according to the notice on the invoice. He does not limit his confidence to a few historic houses as heretofore, and these establishments are compelled to be more commercially energetic than ever. The effect upon the medical profession is not less marked—indeed, the relationship existing between the physician and the pharmacist is a welcome sign of an altered current of feeling.

Here we stop, though we could amplify to an indefinite extent this grateful train of reflection. We hold these and similar considerations as the externals of the subject—they do not touch the one grievance over which the druggist mourns and which Mr. Schacht has had the courage to bring prominently into notice. We quote from the address.

"To find a man or woman 'in society' content to be publicly seen in friendly talk with a pharmacist, or, indeed, permitting the association of their children with ours at a public school, is to see a phenomenon of rare order. The

doctor is the lady's, and sometimes the gentleman's hero: the pharmacist is the tradesman to both." The sentence is literally true. We know of one pharmacist who gained admission for his son into a high classical school, solely because the father did not reside in the neighbourhood, and because also he was engaged in a business in which his own name did not appear.

The same pharmacist, who was himself classically brought up, and who, on entering pharmacy, could read Greek and Latin as a recreation, lost his whole circle of college friends the moment that it was discovered that he was engaged in trade.

Other illustrations founded on direct personal knowledge could be adduced.

Confronting unwillingly this exact position of affairs, we are justified in considering as subsidiary the world's estimate of the pharmacist as a representative of his art, viewed in comparison with its estimate of him as an individual.

Mr. Schacht observes: "Whatever, then, the public estimate of us may be, I think it is mainly the echo and the reflection of that previously adopted by our neighbours the doctors." Again: "Their general tone and manner towards us have furnished the germ which has thus fructified." We believe, on the contrary, that the sole reason is because the pharmacist is known by society to stand behind a counter, and to keep a shop. We have never by any ingenious argument or plausibly-constructed theory seen it possible to abandon this conclusion, nor do we think that a shadow of difference would be effected by the selection of any particular portal through which the pharmacist might pass.

The one hope as regards the social point which we have entertained, and to which we look with some confidence, is the admirable manner in which many of our confraternity have distinguished themselves by their personal acquirements: the individual reputation thus gained takes pharmacy out of its immediate circle, and by a reflex action tends to elevate it as a vocation. This society understands. Of the precise nature of an introductory examination it knows little and cares less. No pharmacist achieves distinction in educational honours or in science without distinctly raising the standard of estimation by which the whole body is regarded by the world.

It is difficult, and perhaps impossible for those amongst us of an older generation, to enter upon the merits of this question. A man who, for a long course of years, has been honourably engaged in trade pharmacy, and found in its pursuit his chief delight, is hardly in a position to judge fairly of an element of bitterness which mingles in the cup of his young successor. He has made his own way by an indomitable perseverance, by uprightness in his dealings, and unwavering purpose. Verily he has his reward. But the son, coming later into the field, starts with advantages which the father never had, but which he glories in having the power to bestow upon his offspring. Hence the crucial difficulty—these very advantages first raise the son in his whole tone of thought, and give him a high educational standing. Had they no further influence, personal embarrassment would not result, and we might compose a glowing essay on the value of intellectual training; but, secondly, directly, and inevitably, they take the son into other and new associations, into other and new circles of society. All goes well if cultivation ends, as in these circles it does invariably, in some branch of professional life; but let it terminate in a shop in which goods are sold behind a counter, and the door of what is called society is closed against the intruder.

The bearing of the profession, or the mode of legal

qualification, are no more concerned in this decision of society than in the final settlement of the Zulu war.

RELIGIOUS COMPETITION.

Most of our readers know that while we in England have to struggle against co-operative stores, in France the pharmacien, in spite of legal protection, is not shielded from the invasion of his rights by the Religious House. This has been a fertile source of complaint for years, and has frequently been alluded to in our own medical journals. The provincial pharmacien is sorely tried by this authorised interference; and we have before us a sheet of caricature sketches taken from *La Petite République Française* (August 24, 1879), which vigorously portrays the annoyance. The woodcuts are entitled "Les Bonnes Sœurs empiriques, or the illegal exercise of medicine." The first sketch represents two of the sisters compounding physic, under which is the statement that "in every central commune the Sisters, who scarcely know how to read or write, have established dispensaries. They bleed, extract teeth, sell pills, and prepare ointments, which have received benediction, against fevers." "Mr. Pharmacist," says a customer in another drawing, "for how much will you make up this prescription?" "For 2½f.," is the reply. "Thanks, then I shall take it to the Sisters, who will do it for much less."

"Is it just, Monsieur le Curé," exclaims another, "that in your parish the Sisters, in defiance of the law, should practise medicine and sell remedies at the risk of life?" "It is from motives of charity," is the explanation—and so the conversation is conducted throughout the series.

It is clear that, allowing for exaggeration, the old provincial French grievance still remains—in Paris itself charitable institutions buy their drugs from the pharmacien—and as the misfortunes of others are said to yield a certain amount of consolation, we may take comfort that we have not to battle with a monopoly which was described once (Fortoul, Jan., 1858), as injurious not only to the public safety, but "to the station and fortune of all young men who, having completed their studies, seek in pharmacy an honourable position sufficiently lucrative to allow them to bring up their families."

ASIATIC PETROLEUM.

From Baku, on the Caspian, we hear a wonderful account of the petroleum springs. All around, the ground is sodden with natural issues of naphtha; so abundant is the supply that the earth in some places receives a coating of asphalt, and when water is deficient the streets are moistened with coarse residual naphtha to allay the dust. When a north or west wind arises the air is thick with impalpable marly earth, which the least glow of sunshine fixes indelibly in one's clothes. The surrounding district of the springs is almost barren of vegetation, and scattered here and there are the pumps or well-houses covering the borings for oil, in which the crude liquid is brought to the surface. The whole neighbourhood smells of petroleum, and the soil is black with waste liquid and natural infiltrations.

Boring for naphtha is conducted in the same manner as that for coal; the depth varies from 50 to 150 yards. Layers of sand have to be pierced, but it is the loose boulder that is the great dread of the operator, for when the rods are withdrawn the boulder has a habit of falling back to its place and effectually closing the orifice. Sometimes the naphtha rises to the surface, as in the case of the artesian well. Crude petroleum is drawn up in long buckets, 50 gallons at a time. This is a blue-pink transparent liquid, which is poured into rudely-constructed troughs, from whence it is conveyed into the distillery. Distillation is conducted at a temperature commencing with 140° C. When no

more oil comes over at this heat, the result is withdrawn and the temperature increased by 10°. This second product being laid aside, the heat is increased still further, and the result of the third distillation forms the best quality of petroleum for lamps. The residual treacly fluid is termed astalki. Distilled petroleum, if used in lamps, would clog the wick with a deposit of carbon. To render it saleable it is placed in a large reservoir within which revolves a paddle-wheel. Sulphuric acid is first added, allowed to settle, the clear supernatant liquor being drawn off; then it is similarly treated with caustic potash and becomes fit for sale. The astalki, just alluded to, has for years past been the only fuel used on board war-ships or mereantile steamers on the Caspian. Vast quantities are poured into the sea for lack of stowing place or demand, and it seems a pity that when fuel is at such a prohibitory price in England some ingenuity could not be devised to utilise these enormous supplies of heat-producing material. If electricity can be so controlled as to light our dwellings, we can see no reason why astalki might not be manipulated so as to warm our hearths. When manufactured into gas it is allowed to trickle slowly into retorts raised to a dull red heat, pure gas with little graphite being the result. Weight for weight astalki gives four times as great a volume of gas as ordinary coal. From the above data it seems not unreasonable to predict a commercial future for the natural petroleum of the Caspian region, and specially for the comparatively waste product called astalki. That it will be used on the guaranteed railway from Tiflis to Baku, and on others which will certainly be projected, there can be no doubt: its local employment, though undeveloped, is considerable; and unless its capabilities have been strangely over-estimated it might be of service to ourselves.

Provincial Reports.

ARMLEY.

ADULTERATED SPIRIT OF NITRE.—On August 14 Edward Lobley, shopkeeper, Theaker Lane, Armley, was summoned for selling $\frac{1}{4}$ lb. of sweet spirits of nitre, which, according to the borough analyst's report, contained "scarcely any nitrous ether, on which the medicinal value of the liquid chiefly depended." The Town Clerk, who prosecuted, said the defendant would plead that he purchased the nitre from a chemist in the same state as that in which it was sold by him. It was much to be regretted that persons who traded in these articles should not take the precaution to get a warranty from the wholesale dealer. The Corporation would proceed against the wholesale dealers if they could; but the latter were much too wide awake when the inspector called, and it was impossible to get convictions against them. He (the Town Clerk) would rather get convictions against the dealers than against persons who were really innocent, believing that the articles they sold were *bonâ fide*. Under the circumstances, he should be perfectly satisfied with a small penalty. The defendant said he sold the article in exactly the same state as he purchased it. The Bench inflicted a penalty of 2s. 6d. and costs.

BOLTON.

DEATH.—Mr. Wm. Haslam, of the Burnden chemical works, died here on September 2. Mr. Haslam in past years had taken a prominent part in local political and religious matters as a Conservative and Churchman.

DUBLIN.

INFRINGEMENTS OF THE PHARMACY ACT.—The Pharmaceutical Society of Ireland has begun to exercise its powers

in the repression of illegitimate dispensing. On August 16, at the Northern Divisional Court, before Mr. O'Donnell, Messrs. Beater & Hanly, trading as Beater, Hanly & Co., Sackville Street, were summoned by the Pharmaceutical Society of Ireland for having, on August 10, contrary to the provisions of section 30 of the Pharmacy Act of 1875, they not being registered as members of the Society, or as chemists and druggists, compounded and sold certain prescriptions—a lotion and a box of pills. Mr. Purcell, Q.C. (instructed by Messrs. Ennis & Son), appeared for the Society. Mr. Gerald Byrne appeared for the defendants, and said that his clients instructed him to admit the offence charged in the summons, which they regretted. The fact was that one of the defendants' assistants did make up the prescriptions without defendants' knowledge or consent. Mr. Purcell said that if defendants said they were sorry, and would undertake that such a thing would not occur again, his clients would be satisfied. The Society had a duty to perform; and, in the interest of the public, it had to prosecute defendants. Mr. O'Donnell concurred in this opinion. He believed, however, and was glad that there were few in this country who committed breaches of the law of this kind. He would in the present case impose a nominal penalty of 10s. Mr. Purcell expressed himself satisfied, if defendants agreed to pay five guineas costs. Mr. O'Donnell said this case would be sufficient to indicate what the law was; and he intimated that in future, if cases of this kind were brought before him, and the offence proved, he would inflict severe penalties.

There was a second summons, at the suit of the Pharmaceutical Society, against Mr. Brownrigg, of 95 Talbot Street, for a similar offence, committed, as alleged, on the same day. The defendant declined to admit any offence. Mr. Robert Cowen, residing in Geraldine Street, deposed that, on the day in question, he went to defendant's establishment and gave a prescription to defendant to make up. Defendant told him to call again—that it would be made up in an hour. Witness called again, and it was not made up; but he saw defendant make up the lotion produced. He put the several stuffs into it from different bottles, wrote and pasted the label on the bottle, and gave it to witness. He also got a box of pills from him. Defendant made out a bill and gave it to witness, who paid him 1s. 6d. Mr. Fennell, registrar of the Pharmaceutical Society, deposed that the defendant was not a member of the Pharmaceutical Society of Ireland. The letters "M. P. S." on the label used by defendant on the bottle of lotion usually meant "Member of the Pharmaceutical Society." For the defence, William Coulson, an assistant in defendant's shop, was examined. He stated that the prescription in question was not made up by defendant; but at Hamilton & Long's. Defendant always gets such prescriptions, of which he gets very few, made at Hamilton & Long's. Witness went out by the hall door of defendant's house in order not to let Cowen see that the defendant was short of the articles required. He took the bottle with him. He put the pills into a different box from that which he got at Hamilton & Long's, as it would not be easy to take the label off a pill-box. The label on the bottle was changed; but it would not be impossible that Cowen could have seen defendant putting on the label owing to the construction of the shop. Witness added that he saw Cowen sit down on a chair. Mr. Cowen, in reply to his Worship, repeated his evidence, and said the witness was not the young man he saw in the shop, and that he did not sit down, as stated. The witness Coulson stated, in reply to Mr. Purcell, that he did not know the assistant from whom he got the bottle at Hamilton & Long's. He paid one shilling for it; but he got no bill. The prescription was not numbered. He did not think these things were numbered when it was known that they were for another chemist; but they were when sold to the public. Mr. Purcell: Is it your evidence that Messrs. Hamilton & Long aid in evasion of the law? Witness said he considered there was no evasion of the law. Mr. Purcell asked had he the person who had sold him the medicine here? Witness said he had not. Mr. Purcell said that it was not alone an offence for defendant to compound the medicine, but it was an offence to sell it, and the sale had been clearly proved. His Worship fined defendant 5s. and 3l. 10s. costs. Defendant, before leaving court, claimed that he was exempt under section 31.

GLASGOW.

THE DRUG TRADE ON SUNDAYS.—Thus writes "A.B.G.R." in the *Glasgow Herald* for September 2:—"I am in a doctor's shop in one of the main thoroughfares in town, and have to be in shop at 9 A.M. just as any ordinary day in the week. When I open, the first thing that is asked for is 'hair oil,' and from 9 till 10.30 there is nothing sold but 'hair oil and seidlitz powders.' When the bell for church attendance begins to toll the people come for confectionaries. After 11 boys begin to flock in for half-penny and penny worths of glycyrrah root, what they term 'lickary stick'; also honey, cream of tartar, citrate of magnesia, and other little things, which all could be got on Saturday evenings. This is the work done till 9 P.M., when I close; and I have been two years in this situation, and I never during that time entered a church door. I would be very cheeky to even ask it, as I would get the old answer, that if I did not like it I could give it up. Now, is this Christian work? Is this necessary work which druggists are supposed to keep open for? I am quite sure they could be shut just as well as publicans, allowing one hour in the morning and two in the evening."

HUSBAND'S BOSWORTH.

BURGLARY.—During the night after August 25 the house of Mr. Sneyd, chemist, was broken into by some daring burglar, who, having first tried in vain the back of the house, entered by the dining-room window in front. A crow-bar, by which the sash was forced, was afterwards found in the garden. Pieces of burned matches were found on the carpet of the drawing-room, in the dining-room, the kitchen, and shop. The visitor seems to have cared only for cash, as he passed by valuable pieces of silver, ornaments, and plate, and the only property missed was 4½l. in coppers, which had been left in the till, and an old cash-box, in which was a seal.

LIVERPOOL.

A PROMISING CHEMIST'S BOY.—On the 10th instant, at the Liverpool Police Court, a respectably dressed youth, named James Henry Davidson, errand boy to Mr. Livesey, a druggist in Ranelagh Street, was charged with stealing property of the value of about 400l. It appeared that on the 18th of last month the prosecutor gave the lad a cash-box to take into an adjoining room, where there was a safe. The box contained 80l. in gold, 10l. in silver, and 130l. in bank notes, a cheque for 200l., a gold watch, and some articles of jewellery. Two hours afterwards the prisoner and the box were missing, but in the course of a day or two the prosecutor received a letter by post containing the cheque and 40l. in bank notes, and subsequently a portion of the jewellery was returned to him. In the meantime the police were instructed, and it was found that immediately after the robbery the prisoner hired a cab and drove from Liverpool to the Belle Vue Gardens, Manchester. For this journey he paid the cabman 50s., and also treated him in the gardens. The prisoner then went to Buxton, returned to Liverpool, and again went to Manchester, where he was apprehended by Sergeant Kelsall, of the Manchester detective force. Money and property to the value of 300l. has been recovered. The prisoner, who said he had nothing to say in reply to the charge, was remanded.

TRADE MEETING.—A general meeting of the chemists and druggists of Liverpool was held on September 1 at the Royal Institution, to resist the tendency to reduction of prices of proprietary articles. The chair was taken by Mr. A. Redford, president of the Registered Chemists' Association. The good attendance showed the interest generally taken in the subject of the meeting. Communications were received from Messrs. C. Jones, Birkenhead; Greenall, Flint; Stanton, Rock Ferry; Barton, and Williams, approving the object of the meeting. The Chairman, Messrs. Shaw, Symes, Edisbury, Marson, M. Hughes, Turner, T. F. Abraham, Peet, Woodcock, Warhurst, Wright, Hocken, Paddock, Wharrie, Mackinlay, Fletcher, Lloyd, of Garston, and Messrs. Ball, Fore & Cooke, of Birkenhead, spoke, with only one exception, strongly against departing from makers' advertised prices. It would inevitably lead to reduction in other departments of the business, and the opinion was strongly expressed that its effect would be disastrous, and that no

sufficient reason at present existed to justify its adoption. The meeting adopted resolutions affirming the determination of the trade generally to maintain the uniformity attainable by adhering to the makers' advertised retail prices.

MIDDLESBOROUGH.

FIRE AT A DRUGGIST'S.—On August 23 an alarming fire broke out on the premises of Mr. Richard Sowerby, wholesale druggist and oil merchant, North Street, Middlesborough. About 10.45 A.M. Mr. Sowerby was in the cellar underneath his shop, engaged in running some naphtha from a cask into a cistern. The latter overflowing, some of the naphtha ran on to the floor, giving off a strong gas. This reached the kitchen fire, and at once exploded with a loud report. The cellar flaps on the pavement were blown up, and the flames from the burning naphtha arose by the staircase to the main part of the building with great rapidity. Large quantities of oil were stored in the warehouse behind the cellar, while smaller quantities were in the shop, and casks of inflammable material were lying in an adjoining archway. Fortunately, the police station is on the opposite side of the street; the explosion attracted the attention of the officials, and the hose and reel were at once brought out, while messengers were despatched for the fire-engine. The inspector, forcing his way into the cellar, rescued Mr. Sowerby, who was much burned about the arms and face. Mrs. Sowerby and an assistant were also slightly injured. The fire brigade, on its arrival, found a good pressure of water, and by degrees the fire, which had mounted to the top of the building, was got under; but two hours had elapsed before the flames in the cellar and shop were extinguished. The damage will be extensive, and Mr. Sowerby is only partially insured in the Atlas Fire Office.

HOMŒOPATHIC ITEMS.

THERE is a homœopathic life insurance office in New York which takes homœopaths at lower rates than others. Dr. Neville Wood, writing in the *Homœopathic Review*, gives the following as the "mortality experience of 10 years" of this office, certified by the Government auditor:—

					Deaths
7,927 policies to homœopaths	..	..	..	..	84
2,258 policies to non-homœopaths	..	..	..	..	66

The annual Congress of Homœopathic Practitioners of Great Britain was held at Malvern on September 11, under the presidency of Dr. Richard Hughes, who delivered an address on "Homœopathy: its Present State and Future Prospects."

Dr. Shuldham has resigned the editorship of the *Homœopathic World*, and is succeeded by Dr. Burnett, formerly of Birkenhead, now of London.

An American correspondent of the *Homœopathic Review* tells how some of the American practitioners get at their high dilutions. He says:—"There are men in practice here who openly boast that they have only bought certain medicines once during the 25 or 30 years they have been in practice, and have filled up the bottles as fast as they became empty; and they furthermore assert that they find the medicine just as effective in treating disease now as they did when they were using the first duly-stamped original."

COPYING INK.—Add to a concentrated solution of log-wood 1 per cent. of alum and 1 per cent. of lime water, so as to obtain a permanent precipitate. Then add a few drops of a dilute solution of chloride of calcium until a blue-black colour is obtained. Drop by drop add hydrochloric acid until the colour is changed to a reddish tint. Some gum arabic and $\frac{1}{2}$ per cent. of glycerine will complete the ink.—*Journal de la Société de Pharmacie de Constantinople.*

British Pharmaceutical Conference.

SIXTEENTH ANNUAL MEETING.

Under the Presidency of G. F. SCHACHT, F.C.S., Clifton

SHEFFIELD, AUGUST 19 & 20, 1879.

THE members of the British Pharmaceutical Conference commenced to arrive in Sheffield on Monday, August 18, and were distributed about in the various hotels of the town. The largest group was to be found at the Imperial, but smaller pharmaceutical companies were also billeted at the King's Head, the Angel, the Victoria, and the Black Swan. Cold and dismal weather prevailed during the meeting, but it did not succeed in chilling the cordiality of the entertainers, nor in checking to any appreciable extent the enjoyment of the guests.

On Tuesday, August 19, the members assembled in the Freemasons' Hall, Surrey Street, and over 100 were present when Mr. Schacht commenced his presidential address. Before the close of the meeting 145 names had been inscribed in the visitors' book.

On the chair being taken, Mr. W. Ward (Sheffield) addressed a few words of welcome to the members, expressing the pleasure that the Sheffield chemists anticipated from the Conference, and the hope that the arrangements made would give to the guests pleasant memories for years to come.

The names of delegates were next announced. Among these were the President, Vice-President, Treasurer, and five members of the Council of the Pharmaceutical Society of Great Britain, and the President and five members of the Council of the Pharmaceutical Society of Ireland.

A LETTER FROM MR. H. B. BRADY

To the President was read by Professor Attfield. The writer, who dated from "The Club, Yokohama," regretted his inability to be present at this Conference, and as indicating the wide influence of the Association, mentioned that he had seen in the shop window of a native bookseller at Hiogo a new copy of the Year-book of Pharmacy offered at \$4½.

THE GIFT OF BOOKS.

Professor Attfield referred to the books on the table which had been purchased for the library of the Sheffield Chemists' Association with the ten guineas which had been placed at the disposal of the committee out of the Bell and Hills Fund. There were also Hanbury's Science Papers and Pharmacographia, presented by Mr. Thomas Hanbury, and engraved portraits of Jacob Bell, Wm. Allen, and Jonathan Pereira, offered by Mr. Thomas Hyde Hills. These gifts were acknowledged by Messrs. Ward and Learoyd.

Mr. F. Baden Bengier next read the following

REPORT OF THE EXECUTIVE COMMITTEE.

During the past year the various objects of the Association have been successfully promoted or accomplished.

It is again the pleasant duty of your Committee to report a satisfactory condition of the British Pharmaceutical Conference. The annual Year-book was issued in good time, and fully maintained the reputation of its predecessors as a faithful *résumé* of pharmaceutical progress. The MS. of the 1879 volume is now in the hands of the printer, and its issue to members will take place as soon as the report of the forthcoming meeting and the editor's introductory chapter can be added to it.

At a meeting of your Committee held in London on October 2 of last year, applications for grants of money to aid authors to defray the cost of materials used in carrying out stated researches were received and considered. It was resolved—"That 10*l.* be placed at the disposal of Mr. Thresh for the purchase of materials for an analysis of the rhizome of *Zingiber officinalis*, and a comparative examination of the ginger of trade;

that 10l. be at the disposal of Mr. Gerrard and Dr. Senior for the purchase of the drug termed *Pituri*, and for the materials for its pharmaceutical and chemical examination; and that 40l. be placed at the disposal of Dr. Wright towards the cost of the materials for an investigation of the active principle or principles of Japanese aconite, and for an investigation of the active principles in the leaves and flowers of ordinary aconite."

Reports by these gentlemen will be presented.

At a second Committee meeting held on July 2, Professor Attfield, Senior General Secretary, reported in detail the work done since the last meeting of Committee, including matters relating to the editing, printing and publishing, and delivery to members of the Year-book; the grants in aid of research; correspondence respecting improper use of the membership of the Conference; correspondence respecting the Bell and Hills-Fund books; compilation and distribution of the list of subjects for research; collection of subscriptions; organisation of the approaching meeting at Sheffield; correspondence with members likely to work on the Executive Committee in 1879-80; and arrangements for inviting all registered chemists and druggists not already members to join the Conference.

The very successful meeting held in Dublin last year will be still fresh in your memories. The pleasant relationships with our Irish brethren then formed or strengthened fully justified (if justification were needed) our acceptance of the invitation to visit Ireland, and proved with what satisfactory results two societies may form one conference. In returning once more to its native land, approaching indeed its very birthplace, the Conference is welcomed with a heartiness which must be highly gratifying to its members, but which is so invariably extended to it that there is danger of our accepting it more as a right than a privilege. On the present occasion we have perhaps a special reason for remarking on the thoughtfulness which has characterised the arrangements of the Local Committee. It has been repeatedly urged that the objects of the Conference are best promoted by the avoidance of formal entertainments, and whilst fully appreciating the generous impulse which has so often in the past disregarded this perhaps not sufficiently strongly expressed conviction, your Committee venture to hope that the action of the Sheffield Local Committee in this particular may be allowed to form a precedent. The excursion, which usually takes place on the Thursday following the business meetings, affords an admirable opportunity for the renewal of old friendships and the formation of new ones; or to quote the words of the first article of our constitution, of promoting "the friendly reunion of those engaged in the practice or interested in the advancement of pharmacy." The organisation of reunions of this kind will, your Committee is assured, be always gratefully accepted by the Conference as an ample indication of the hospitable feelings of its entertainers.

Sufficient papers of pharmaceutical interest have been received to fully occupy the time which can be devoted to their reading and discussion at the present meeting. The names of many old and valued friends of the Conference appear in this list, as well as those of new contributors, to whom a cordial welcome will be given.

The Committee have to announce with much regret that at a meeting held last evening they received a formal communication from their valued Senior Honorary Secretary, in which he tenders his resignation of the post he has so long filled with such distinguished success. The communication runs as follows:—

"Asblands, Watford.

"August 16, 1879.

"To the President of the British Pharmaceutical Conference:—

"DEAR SCHACHT,

"After sixteen years of pleasant labours as one of the honorary secretaries of our Association, I regretfully, and yet with a feeling of satisfaction at having done useful service, place my resignation in your hands. I thank my colleagues for the opportunities they have given me of joining them in promoting scientific development in pharmacy and good fellowship amongst pharmacists. From the birth of our organisation we have all worked together with the utmost heartiness and harmony, and although I now return to the ranks, I trust I shall be allowed to continue to support the objects of the Conference with undiminished enthusiasm and with all the experience and knowledge I have gained as a member of the staff. I hope and believe that the welfare of the Conference and its objects has not suffered either at my hands as a secretary or during my secretaryship, and I do not resign until I have assured myself that that welfare will be maintained, if not enhanced, by the change or changes that will, I know, necessarily be consequent on my resignation.

"I am, Dear SCHACHT,

"Yours faithfully,

"JOHN ATTFIELD."

The Committee felt that the changes involved in Professor Attfield's resignation were of so serious a nature that they shrank from the responsibility of accepting it until a very mature consideration had provided the means for meeting them with a fair prospect of efficiency, and at their earnest request Professor Attfield consented to continue the duties for one year more, in order to afford them the necessary time. The Committee are sure every member of the Conference will concur in a feeling of real gratitude to Professor Attfield for this further manifestation of his self-denying devotion to the best interests of the Conference.

Professor Attfield read the

FINANCIAL STATEMENT.

THE GENERAL FUND.

The Senior Hon. Secretary in Account with the British Pharmaceutical Conference.

Dr.

	£	s.	d.
Balance from 1877-78	77	6	2
To Sale of Year-books by Secretary	15	0	0
" " " Publishers	39	3	4
" Advertisements in 1873 vol.	0	3	2
" " " 1874 vol.	1	0	0
" " " 1877 vol.	14	9	3
" " " 1878 vol.	126	1	0
" Subscriptions from Members	749	16	4
	1,013	19	3

Cr.

	£	s.	d.	£	s.	d.
By expenses connected with Year-book:—						
Butler & Tanner, for printing, binding, and handling	410	5	9			
Editor's salary	150	0	0			
Me-srs. Churchill:—						
Commission on advertisements	55	8	4			
Advertising Year-book	2	3	0			
Delivery to members	53	16	9			
Foreign journals (Nutt)	3	4	6			
				654	18	4
" General Printing:—						
Butler & Tanner	2	15	0			
Stevens & Richardson	3	15	3			
Parkins & Gotto	7	2	7			
				14	12	19
" Printing and postage of 10,500 invitations to membership	86	10	8			
" Directing circulars and envelopes	5	0	3			
" Assistant-secretary's salary	40	0	0			
" Postage (about 10,000 letters)	31	10	0			
" Sundries	13	1	6			
" Expenses of meeting at Dublin	12	6	4			
" Purchase of a few sets of Year-books, 1870-72	24	3	4			
" Grants in aid of research	50	0	0			
" Balance to Treasurer	71	16	0			
				1,013	19	3

The Hon. Treasurer in Account with the British Pharmaceutical Conference.

Dr.

	£	s.	d.
1878.			
To Balance in hand on July 1	33	7	5
July. To Dividend on £250 Consols	3	13	6
1879.			
Jan. To do. do.	3	13	6
June 30. To Cash from Hon. Sec.	71	16	0
	112	10	5

Cr.

	£	s.	d.
1879.			
Jan. 29. By Power of Attorney	0	6	0
By Balance	112	4	5
	112	10	5
	£	s.	d.
Assets July 1, 1879 { Cash in hand	112	4	5
{ Consols (stock)	250	0	0

THE BELL AND HILLS LIBRARY FUND.

Dr.

1878.					£	s.	d.
To Balance in hand on July 1	..	..	..	..	5	4	1
July. To Dividend on £550 Consols	..	..	..	..	5	2	9
1879.							
Jan. To do. do.	..	..	..	..	5	2	9
					£	5	9 7

Cr.

1878.								£	s.	d.
By Purchase of Books for Sheffield	..	..	..	..	..	..	..	10	10	0
„ Balance	..	..	..	..	..	..	..	4	13	7
								£15	9	7

	£	s.	d.
Assets July 1, 1879 { Cash in hand	4	13	7
{ Consols (stock)	3	0	0
Examined and found correct { W. HAYES, Dublin, } Auditors.			
{ G. A. CUBLEY, Sheffield, }			

The adoption of the report and the financial statement was moved by the President, seconded by Mr. Ellinor, and carried unanimously.

Mr. Schacht then read the following

PRESIDENT'S ADDRESS.

AMONGST the customs which rule this Conference in its relations with its President are two that in their co-existence may not quite always conduce to fortunate results. The same individual is retained in his exalted position for two consecutive years—and he is expected to deliver an address on the occasion of each annual meeting. In defence of the latter it might, perhaps, with other considerations, be urged that he who is selected by the voice of this Association to a dignity so distinguished as the occupancy of this chair may fairly be expected to have something to say to his fellow-pharmacists, gathered from either his own personal knowledge, his experience, or his aspirations worthy of being uttered. But when he finds himself called upon to repeat the duty after the short interval of one year, he may be excused for feeling that his chance of enlisting the interest of those who listen is sadly diminished, and that he must even more earnestly than on the occasion of his former effort hope for indulgent sympathy.

In days gone by the course of events during the current year, so far as they affected scientific pharmacy, assisted much to indicate the plan and scheme of a presidential address; and some of the ablest discourses recorded in our annals consist chiefly of judicious summaries of the progress of the sciences connected with our calling, and of such movements within and outside our body as appeared to affect pharmaceutical culture. But the conditions which rendered such a course wise in the earlier Conference days are now much changed. The same interest, perhaps even greater interest, is felt in these matters, but the work of summarising them appears to have passed to other hands.

The Press, which is ubiquitous, and whose chiefest apparent function is to absorb most other functions, has grown strong in our midst, and able editors obligingly offer to us all, month by month, and journal by journal, a taste of the plums and a slice of the pie your President, might otherwise be fondly regarding as destined for his own gathering and maturing as a "bon bouch" for his expected guests; and to complete his discomfort lurks the conviction that should even a stray blossom escape this scrutiny, and he succeed in impressing it to his service, the Conference itself in its elaborate and well-ordered Year-book will a few weeks later completely extinguish his puny entertainment and make the remembrance of it stale and flat.

The area for my choice appearing thus somewhat narrowed I endeavoured last year to select a subject which, for complete consideration, would afford matter for two addresses, and which yet could be so arranged that the portion first delivered might stand fairly well by itself should any cross stream of events interfere with the original purpose, and I finally determined to make, as well as I could, two presentments of the same fact, viz., the pharmacist as we see him ourselves, and the pharmacist as seen by others; and, further, should these two images be found to differ (and I scarcely expected them to coincide), to reflect upon some of the points that difference might suggest.

Last year, then, I offered the first portion of this scheme—a view of the pharmacist as seen by ourselves.

It would doubtless be wrong to assume that the picture then offered was universally approved; but I know it to have been the result of truth-seeking observation; and 12 months' further experience assures me that it was fairly correct. I find that the more I know of my fellow-labourers the more good stuff I see in them, and the closer I become familiarised with the work they are doing the more I am able to respect it. Hence I feel no hesitation in repeating the opinion expressed last year, that the typical pharmacist "stands the illustration of a high order of citizen." But lest there be danger that such an estimate resting long unchallenged provoke conceit, let me turn to what may prove an antidote of the severest kind, viz., the estimate of ourselves by others.

Already I can fancy that the recollection of a well-known couplet has passed through many minds, and has prepared their conceit, had it begun to develop, for a heavy fall—

Oh had some power the giftie given us
To see ourselves as others see us—

for, whatever was really prevailing in the poet's mind when he penned those lines, the usual sense in which they are quoted is one that implies erroneous self-estimate on the one hand, and wisdom—superior, if not supreme—on the other; and by this reading I and those who are inclined to support my views ought to stand convicted by a jury of our own choice, not only of great conceit, but of great folly also. But to such a position and to such a verdict I demur. A solicitude to ascertain what others think of us need not necessarily coincide with any such relation. "Whom do men say that I am?" was the inquiry of One we should be little inclined to charge with folly or conceit; it was "men," not the speaker, that were likely to be the better for a correct appreciation of the speaker's self, and at the risk of being charged with an unwise comparing of small things with great, I venture the opinion that what the public think of us pharmacists is of graver import to the public than to us.

Every art must rest its claims for existence upon some great public want. The universality of disease created the art of medicine. The cure or relief of human suffering is the great aim and purpose of that art; and hence, in its pure and wholesome progress, every single creature of the public must ever have the profoundest interest. If public ignorance or public prejudice in any way warps that wholesome progress, it is the public that chiefly suffer: they are the many, we are the few; the penalties we may be called upon to pay are but sectional, theirs must be universal; we have but to accommodate ourselves to the conditions, they have to endure them. Conversely, should public wisdom tend but in the least degree to favour the full, fair scientific progress of medicine, the benefit must be experienced in a thousandfold degree where there is a thousand times the capacity for its reception.

Does that wisdom, then, display itself in a fashion most conducive to the best interests of the public? Let us frankly and gratefully answer that in many respects it is manifested with high intelligence and with noble generosity. The hospitals that adorn our entire land, and many of the laws that grace our Statute-books, stand among the living monuments of both; moreover, few of the recognised professors of medicine pass through the labour of their lives without achieving fair reward in honour or in money—perhaps I might truthfully say in honour and in money. And if the same or similar sentiments prevailed towards pharmacy and its professors, the two presentments I am supposed to be offering would probably coincide, and I should have to say but little more upon this topic to-day. But with the majority of the public—certainly with the section which is called "society"—this is not the case, and but little of the honour, and as little as possible of the money, is given to us in exchange for our lifelong work; the sole monuments of our professional existence are of our own raising, and "a House" can scarcely be got together to consider a Bill having for its object the regulation of so uninteresting a matter as pharmacy.

It is true we are credited with being concerned in a "clean" sort of business, from which we are, oddly enough, accused of making very small incomes out of very large profits; we are admitted to possess decent shops which it is not unseemly to enter, and which, indeed, it is quite correct to make use of for any purpose not demanding a fee; we are supposed to be bound by some law of custom (certainly not by any sense of duty) to obey all behests, at all hours, on all days; we are credited, in short, with being "society's" most obliged and humble servants, slavishly ready to do whatever is told us, and to take for payment whatever cannot be conveniently bestowed upon the professional man on the one hand or the co-operative stores on the other; to find a man or woman "in society" content to be publicly seen in friendly talk with a pharmacist, or, indeed, permitting the association of their children with ours at a public school, is to see a phenomenon of rare order. The doctor is the lady's, and sometimes the gentleman's, hero; the pharmacist is the tradesman to both.

Such, I fear, is the view very generally taken of us by others, and I need scarcely say this presentment does not coincide with the one I offered last year. Shall I endeavour to account for the difference before passing to other reflections?

With my already declared estimate of ourselves and of our art (so different from My Lady's), it is natural I should con-

ceive that the phenomenon may be traced through a course that lies mainly outside us; and, remembering how many-headed is that great outside public, how prone to the instinct of speculation, and how prone is each species to become absorbed in matters of its own concern, taking impressions of other things mainly at second hand, seldom by original effort, I have thought that the first step should consist in the search for that section of the outside world which is likely to be chiefly responsible for the delivery of the initiatory bias. A very short consideration leads to the suggestion that the public would almost instinctively assume that the doctors would know more about pharmacy and pharmacists than anyone else; and, therefore, that what they thought about us, and the attitude they assumed towards us, would be the proper thing to adopt and to imitate; and the public would have much to justify such an assumption.

More or less the story is known to all (and the more it is remembered the better) that for a long period—until, in fact, quite recent times—pharmacy constituted, both practically as well as theoretically, an integral portion of the medical art, and the pharmacist and physician were one man. It is true this latter condition no longer obtains; it has been found desirable to entrust the different departments to distinct sets of hands, in order that each may be worked to its fullest perfection, and under the completest personal responsibility. But the art remains the same, one portion being no more capable of repudiating another, or declaring its independence of the rest, than is the eye or the heart of the human body; and hence this assumption of a kind of perpetual alliance between the professors of all its departments would be both instinctive and reasonable, and the estimate of the one by the others would be deemed authoritative.

Whatever, then, the public's estimate of us may be, I think it is mainly the echo and the reflection of that previously adopted by our neighbours the doctors. I do not mean that they would pronounce as right the treatment which I have asserted so many of us receive at the hands of the public, but that their general tone and manner towards us have furnished the germ which has thus fructified.

But does our experience with the profession justify this interpretation of their views towards us? I have heard of cases, and have experience of cases, in which individual members of the profession have manifested, by their thoughtful treatment of all pharmaceutical matters, an appreciation of their importance so high and just, and a respect for those engaged in them so fair, that were the question to be answered from such examples the reply would be to the effect that there is no justification for it whatever. I fear, however, that these cases are exceptional.

Of the large majority some, the greater proportion, are as nearly as possible indifferent to ourselves and to our work. There exists, however, a third section of the profession, and I trust it is a diminishing one, that holds us at a very low estimate, that professes to believe us systematically familiar with mean doings and open to mean temptations.

From the first of these divisions I pass with a cordial expression of respect, my chief hopes for the bettering of pharmacy in the future resting with its honoured members; from the last with a hope that they may be speedily delivered from their delusion; and our business for the present lies with the indifferentism that remains, and which is unfortunately only something less damaging than actual hostility. How is it to be accounted for?

I believe it to be mainly due to want of knowledge in two important directions. This large majority of medical men do not know enough of *our* subjects to appreciate them at their proper value, and they do not know the extent of our professional qualifications sufficiently well to give us due credit for them. Notwithstanding the fact to which I have already referred, the essential oneness of all the subjects that together make up the art of medicine, in no modern medical schools do chemistry, botany, and pharmacy rank in educational importance with, let us say, anatomy, surgery, and medical practice: the former are the off subjects, and are very generally done anyhow or nohow, the latter are among the prime subjects, and must be done well. The traditions of the school enlist all the student's enthusiasm for what are called the medical subjects proper, and, as an inevitable consequence, a sentiment near akin to contempt pervades his view of the rest. Caring but little for them in the abstract,

and taught to think little of their practical value to his art, the student of medicine, when he becomes the professor, is but little likely to respect very highly even those he is compelled to admit as their recognised professors, and from the curious separateness that has hitherto characterised the training of the pharmaceutical and the medical student, all that the latter knows of the former amounts to but hearsay, and he finds no particular reason in after life to mature or enlarge his information.

For this state of things we must ourselves take some share of the blame. There is no doubt that ignorance of matters that should have ranged within our knowledge did in times past prevail, and since miraculous changes in social phenomena do not frequently occur, that ignorance may not have entirely yielded yet; but a great effort for improvement has been made; an effort, be it remembered, entirely from within our own body, and its practical results have been sufficiently remarkable to suffice in a large degree to absolve us from that portion of the blame.

But the very circumstance that appears to stamp pharmaceutical progress as unique, and to give it a special dignity—I mean its self-originating and self-sustained character—has largely tended to limit all knowledge of it to those who have specially watched the phenomenon or taken part in it. The policy of those who initiated, as of those who continued the effort, was one that all can respect for its independence, but which, I cannot but fear, time and experience will show to have been in this important respect unwise. It has served to intensify isolation where unification should prevail. The withdrawal of ourselves and our educational processes from the general professional ken has tended to encourage the elimination of the sciences we specially cultivate from the complete medical curriculum, and to foster the notion I have already deplored, that they are accessories of inferior value, and non-essential to medical culture. For this we must still bear our share of the blame.

But whosoever the blame should chiefly lie, I think that the fact of the practical isolation of pharmacy and its professors from the rest of medicine, is due to the general defective acquaintance on the part of the professed medical man with both our subjects and our men.

I must now pass to a consideration of the loss to the art of medicine that occurs from so extended an indifference to the pharmaceutical sciences. It would perhaps be in better taste to let others speak to this point rather than myself. I, therefore, am content simply to remind you of the frequent publicly expressed lament of many distinguished physicians, that so much of their practice is still perforce empirical; and of their equally emphatic rejoicings when some ardent student of science has succeeded in wresting from its mysteries some secret that has offered a glimmer of firmer resting-ground for their doctrines. The teaching of her highest authorities tells us that medicine cannot afford to fling away the help of her natural allies, that she is exposed to constant attack at almost every point, that her growth is not in perfect comeliness and undisturbed proportion, but is liable to distortion and excrescences of formidable type, and that her best hopes for future progress rest in the patient work of her acutest and largest-brained sons—men who possess the power to enlist within their sympathies every department of knowledge that can bring its modicum of truth, and focus all upon that one supreme point—the great problem, life.

I think that among the first regions such men would wish to explore are the very subjects in which we are daily engaged. And with such aspirations animating the great mind of medicine on the one hand, and such opportunities existing for practical co-operation on the other, is it not the simplest of all possible deductions that an effort serving to bring all into better mutual estimation and closer mutual confidence must be attended with a fair hope of distinct gain to the art itself?

So far I have attempted to show what the public estimate of us is, who are chiefly responsible for it, the probable causes that have led to it, and the mischief to medicine that attends it. One more consideration must be stated in order to show that the error is, as I have said, of great practical interest to the public itself.

We are not above the influence of that estimate. Who in this world, whether we ask the question of individuals or of communities, is so strong either in good or evil as to be able to resist such influence? Is the "publican" likely to become a patriot for being daily declared to be an outcast? Branded as a social enemy, an enemy he will continue or become. Should we presume to expect brave deeds in the field if we systematically treated our soldiers as cowards? Brave deeds alone being assumed as possible, brave deeds are done. In short, the opinion of society reacts in a thousand ways upon society's elements; and I fear the constant treatment to which some of us are subject, that says more forcibly than words can say—"You druggists are but hirelings, labouring like other hirelings for greed; take your pay, and be thankful"—exerts a power for degradation that cannot fail to promote the very condition it professes to reprobate. I say, that for its own sake, the public should make haste to see that we are of stuff much better than this.

I am quite aware that at every step of these statements their accuracy may be challenged. I have attempted to do this myself in many ways, and during the process have had to admit, from our own side, how often my standard of pharmaceutical excellence is missed, and that ignorance, carelessness, and looseness of principle are to be found amongst us; and from the other side, that many just and most considerate individuals can be found in English society, as also doctors, whose scientific culture is as large, and whose disposition to make the most of ours is as generous, as heart could desire. Nevertheless, having taken these and kindred facts into full consideration, I allow the statements to stand as what I believe to be the truth.

But to another challenge I have perhaps also laid myself fairly open, namely, to suggest some remedy for the condition of things I profess to have studied and to deplore. To this challenge I have but what may appear a feeble reply. I am prepared with no mature scheme, and can offer nothing that can claim to be regarded as a cure for all that is wrong, but being most anxious to see ground broken in the direction that appears to me most hopeful for the extinction of the isolation that besets us, and thus give opportunity for a clearer view of ourselves and our doings to the rest of the profession, I am ready to suggest a first step. It is, that every student in medicine, whatever department of the art he may be aiming for as the sphere of his ultimate work, be brought, at some period of his training, through one single portal. So many practical objections have been found to exist against the mingling of medical and pharmaceutical students during their attendance at classes or during any portion of their actual study, that I think the portal would have to consist of one of the sets of examinations; but if that examination could be made a common one for all, whether ultimately destined for medicine or for pharmacy, the step would be a useful one. It would serve to declare with authority that certain scientific studies are equally essential in all departments of the medical art; and it would demand of every student that he attain the required standard of proficiency in them. He would thus be prepared, by actual personal knowledge (not through the traditions of his school), to estimate aight the proportionate value of those attainments towards his full professional equipment, he would realise the serious amount of effort required to achieve that knowledge, and he would naturally conceive a feeling of respect for all who had laboured for its acquisition even as he himself had laboured. Whether such an experiment would be attended with results proportionate to the distinctness of the change requires a better prophet than myself to declare. As far as we are concerned, it would be the commencement of a reversal of much of our past policy, it would tend from isolation towards unification, from estrangement towards co-operation, from suspicion towards trust; but these very words seem to me to be full of hope. One possible objection to the suggestion itself I should like to anticipate: it may appear to some as involving the placing of our examinations in the hands of the medical profession. Were this the only course open for our adoption I should not shrink from its close consideration, nor fail to entertain it with great hope of ultimate benefit; but at present I do not think this at all a necessary consequence. The story of our own progress

and my personal knowledge of the completeness of the organisation that lies within our midst suggest rather the alternative, that for every man's certificate of qualification in our subjects he might be required to come to our examinations. I say "at present," for in speaking of "ourselves" and "medical men," as distinct organisations, I shall hope to be using but the language of to-day.

My subject, however, now approaches somewhat too nearly the region of pharmaceutical politics to be continued here—the arena for its discussion in detail lies elsewhere; but I sincerely hope and think that in urging it from this place to the point at which I now leave it, I have acted in sympathy with the pervading spirit of the Conference. To this extent, at any rate, I know that I must carry with me the sympathies of all its members, namely, in a warm desire to exalt the dignity of pharmacy, and in an earnest hope that we pharmacists may ever be found as truly in fact as in aspiration pharmacy's worthy representatives.

A vote of thanks to the President for his address was moved by Mr. W. H. Maleham (Sheffield), and seconded by Mr. G. W. Sandford (London). Mr. Reynolds put it to the meeting, and it was carried with warm acclamation. In acknowledging the vote, Mr. Schaech said that the opinions he had expressed were merely his own individual views. He should be sorry to commit the Conference in any way.

REPORT ON THE ACONITE ALKALOIDS.

By C. R. A. Wright, D.Sc.

THIS paper was read by Professor Attfield. The facts given in this report have been already published (see CHEMIST AND DRUGGIST, August 15, page 313). From several large quantities of Japanese aconite roots the reporter has obtained alkaloids very similar to those from *Aconitum Napellus*; certain slight chemical differences are noted, but it is thought probable that Japanese aconite will be found a suitable source for the alkaloids. Those isolated it is proposed to term japaconitine and japaconine. The reporter found that in isolating the alkaloids there was no advantage whatever in acidulating the alcohol. The crystallisable alkaloid obtained reached 1 per cent. The reporter had also obtained an alkaloid from atis roots (*A. heterophyllum*) which agreed closely with Broughton's atisine. He was only able to obtain less than 1 gramme—a quantity insufficient to admit of perfect purification and analysis; but he has reason to suggest that the formula $C_{22}H_{31}NO_5$ is more probable than that given by Broughton, namely, $C_{16}H_{21}N_2O_5$. Recently the reporter had worked on the aconite herbs. Messrs. Wright, Layman and Umney had worked into a tincture for him 300 lbs. of fresh herb grown at Foxton, Cambridgeshire. The reporter had not completed his experiments, but as far as he had gone he had not been able to obtain crystallisable alkaloids. He judged from the absence of inconvenience in working that the amount of active bases present could not be large.

THE PRESIDENT remarked that Dr. Wright had now arrived at much more definite conclusions.

MR. WILLIAMS directed attention to the point in the paper where it was proved that the use of acid was to be avoided in the preparation of aconitine. He had already, in a working sense, availed himself of this discovery, and he considered the observation was valuable. The experiments with the recent aconite plant were very interesting, and he expressed surprise that no more distinct result had been obtained. It seemed to him that the process of separating the alkaloid would have to be rather different to get a satisfactory result, and merely shaking up with ether and carbonate of soda would fail to extract the alkaloid from such a large bulk. The plant was very poisonous, and he trusted that further investigation would enable Dr. Wright to isolate the alkaloid of the plant.

MR. UMNEY alluded to the fact that Dr. Wright had only had the extract three weeks; therefore, he had had insufficient time to give them the full benefit of his observations of the alkaloid of aconite plant. He was unable to state the particular aconite plant used, whether *Aconitum Napellus*, *A. ferax*, or *Aconitum paniculatum*, but he knew that at present Mr. Holmes, of the Pharmaceutical Society's museums, was investigating the botanical source. He was glad to hear that Dr. Wright's deductions from his experiments were confirmatory of his own opinion of the value of Japanese aconite root, as it is now seen in the London drug market. There could be no doubt it was an equally good or even a more powerful drug than that produced in Germany and England.

Mr. GREENISH remarked that in Japan there were three species of aconite, of which he had examined many samples, and he found that at least two kinds were continually mixed together, one being of a round, turnip shape, and the other possessing more tapering roots. He was convinced that they were distinct roots. Dr. Wright's experiments must be considered uncertain until he made them from one species of aconite. Sehroff had made experiments on aconite leaves, and was of opinion that they contained a very small portion of the alkaloid, even if they contained any.

Professor ATTFIELD inquired whether Mr. Greenish could suggest any method of experimenting on one species and not on two or three different descriptions. If some remedy were not found, he was afraid they must accept Dr. Wright's work as it was.

Mr. LUFF said that Dr. Wright and he only got one alkaloid from the Japanese roots, and the same alkaloid from the two batches.

Mr. GREENISH believed there could be no trouble in separating the aconites. They could not arrive at a satisfactory conclusion until they ascertained what species were employed. More definite information would be obtained if these were separated, and the alkaloid extracted from them.

In moving a vote of thanks to Dr. Wright for his paper, the President expressed his satisfaction that the grant was not entirely expended, and therefore they might expect further communications upon this important subject.

ANALYSIS OF THE RHIZOME OF "ZINGIBER OFFICINALIS" AND SOLUBLE ESSENCE OF GINGER.

By J. C. Thresh, F.C.S.

Two papers were read on the above subjects by Mr. J. C. Thresh.

Proximate Analysis of the Rhizome.—The sample selected for analysis was Jamaica ginger. An ethereal extract of 28 lbs. was made, and from it were obtained,

By agitation with water and petroleum ether (b.p. 50°C.), a deep red *crystalline fatty matter*, of slightly pungent taste.

By condensation from the same petroleum ether a transparent *red fatty matter*, which formed an imperfect soapy solution with solution of potash.

A *volatile oil*, of odour not similar to ginger, with an aromatic and camphoraceous taste, sp. gr. 853 at 15°C., neutral in reaction, and very soluble in absolute alcohol, ether, petroleum ether, and bisulphide of carbon. The author believes there are two distinct volatile oils in ginger, as his product differed from that obtained by previous investigators in colour sp. gr., b.p., &c.

A *neutral resin* and two *acid resins* were obtained by alcoholic treatment, and the alcoholic solution of the extract from which the resins had been separated yielded on evaporation a reddish, thick, oily substance, intensely pungent in taste. Purified from traces of resin, the colour is paler. The author calls this substance *gingerol*. This is the active principle of ginger. It is a viscid fluid, about the consistence of treacle, of a pale straw colour, entirely devoid of odour, very pungent and slightly bitter in taste. Specific gravity of a slightly-impure specimen was 1.09. By aqueous treatment of the remnant of the ginger after the ethereal extract had been obtained, mucilage, several phosphates (magnesium chiefly), and binoxalate of potash were obtained.

Mr. Thresh made further experiments with samples of Jamaica, Cochin, and African ginger. He found that the Jamaica variety contained only about half the proportion of essential oil found in the other specimens, the quantities being .750 in Jamaica, 1.350 in Cochin, and 1.615 in African ginger. The African ginger contained the largest proportion of the dark neutral inert resins, while starch mucilage and especially metarabin were predominant in Jamaica ginger.

SOLUBLE ESSENCE OF GINGER.

In Mr. Thresh's second paper he gave an improved process for the manufacture of a soluble essence. The essence as previously prepared had been found to become turbid after keeping, besides that a good deal of active principle was evidently lost in the magnesia precipitate. A sample of essence, quite clear, was shown, which had been made before Christmas by the following process:—Take of strong tincture (1 to 1) of finest Jamaica ginger one pint, add in small portions at a time finely powdered slacked lime, shaking vigorously after each addition, until the tincture ceases to lose colour, throw the whole upon a

filter, and pass through the residue proof spirit until the product measures two pints. Now add drop by drop dilute sulphuric acid until the rich yellow colour of the tincture suddenly disappears, let stand for 24 hours, filter, dilute with water to four pints, shake with a little powdered pumice or silica (by no means lime or magnesia), and filter at 0°C. if possible. The lime is added to throw down the resins and the acid to precipitate whatever lime may have entered into solution. The addition of water precipitates the neutral resin, wax, fat, and peculiar extractive and excess of volatile oil. The essence will be saturated with essential oil; hence the necessity of filtering at a low temperature. The essence can be darkened, if desired, by the addition of a drop or two of solution of potash.

The PRESIDENT having congratulated Mr. Thresh on the able report he had submitted to the Conference.

Mr. UMNEY said pharmacists were greatly indebted to Mr. Thresh for having brought this subject before them in the exhaustive style he had done. It had been a disgrace to pharmacy that a drug which was so frequently handled and in such a variety of forms, such as African, Cochin, and Jamaica ginger, had been so imperfectly understood. The soluble essence of ginger described by Mr. Thresh was undoubtedly a most elegant preparation, and was well adapted for the manufacture of aerated waters. The difference noticed in specific gravity of portions of the volatile oil was probably almost wholly due to the different processes by which these oils had been obtained. Those who had distilled essential oils knew that, according to the heat used, products would differ slightly in specific gravity. The specific gravity after rectification of some essential oils was most marked when compared with the original crude product.

Mr. GREENISH, having examined microscopically portions of Jamaica and African ginger, found that a large proportion of starchy matter had developed in the Jamaica root in comparison with the African, but the latter, if cultivated for years in the same manner as the Jamaica, would lose its pungent character, and to an equivalent extent would develop the starchy quality.

Mr. HOWIE remarked that this was a subject in which he had taken considerable interest; and he regretted that he was not present at last year's Conference when the discussion was opened. Mr. Thresh had evidently made such good use of his time and done his work so well that he felt he could add but little to what he had said. As regarded the oil of ginger handed round Mr. Thresh said the odour did not recall that of ginger. He was inclined to think that the smell was merely masked, and that it was rather suggestive of petroleum spirit. As regarded the difference observed in the specific gravity of the various oils, the method followed in the preparation no doubt accounted for it in some degree; but it might also be due to a change which he was convinced took place in the oil when kept some time. He had had in his possession for some years a small quantity of oil of ginger, which he believed to have been made by distillation, as they knew that this oil was treated by gingerine makers as a bye product, and recommended more as a curiosity than for its commercial value. This oil of ginger he had found to be but sparingly soluble in rectified spirit; that was not more than perhaps one in 10, and even with one in 50 there were still left some small whitish globules, which, when separated and exposed to heat, dried into a clear glassy resin with almost no odour or taste. He also exposed a little of the oil in a watch-glass to a temperature of about 100°F. for several days, and there remained a resinous residue in appearance and general characteristics like the other. He made these remarks in the hope that Mr. Thresh's attention might be directed to the further examination of this oil to discover whether or not it was a compound, and also what was the character and extent of the change which occurred in it when kept for some time. As to the character and value of the paper he could add nothing to what had been so well said by their esteemed President.

Mr. W. MARTINDALE doubted whether, having in view the compilation of a new Pharmacopœia, from a medical point of view it would be desirable to introduce a soluble essence of ginger into it, though as a commercial article soluble essence of ginger might be very useful. The syrup of ginger might be improved if it were not opaque, but prepared from a soluble essence.

Mr. F. B. BENDER considered the paper of great practical value to them as pharmaceutical chemists.

Mr. THRESH explained that he had not used petroleum ether in the preparation of his essential oil. He found that upon distilling the essence or the tincture of ginger, a considerable quantity of volatile oil came at the low temperature, and it appeared to him that the first portion of the oil, which was most probably lost in the removal of the petroleum ether and distilling the ether from the extract, had the finest aroma, and they lost most of it by their method of obtaining the volatile oil. Neither should he deem it necessary to put the soluble essence of ginger into the Pharmacopœia, inasmuch as it could not be made soluble and of equal strength with the present essence of ginger. By removal of the inert resins, however, a stronger solution was made than could otherwise be formed. He considered that the essence formed by the new process was really the more elegant.

In reply to the President, Mr. Thresh stated that he had not made an

examination with regard to the boiling-point, but he concluded that the mixture of the first portion differed in specific gravity from the other. The isolation of the active principle occupied so much time that he had been unable to further pursue the subject.

Professor ATTFIELD hoped Mr. Thresh would make application to the committee for a grant to continue the investigation.

The PRESIDENT, on behalf of the Conference, tendered to Mr. Thresh their hearty thanks for his able report.

THE GROWTH AND DEVELOPMENT OF "CLAVICEPS PURPUREA."

By W. W. Stoddart, F.C.S., F.G.S., &c.

THE author related that he had been asked by a farmer in the neighbourhood of Bristol at the end of 1877 to investigate the death of some sheep, which had occurred every autumn without any assignable cause. After frequent visits to the farm he observed that the sheep were fed only on the natural herbage grown on the spot. It consisted of two kinds of clover, the ordinary Dutch (*Trifolium repens*, L.), and the common purple (*T. pratense*, Linn.); with these were the ray grass (*Lolium perenne*, L.), or, as it is commonly but erroneously spelt, "rye" grass. It was generally in the month of August when the peculiar illness became prevalent. It took the form of dysentery, inflammation of the bowels, diarrhoea, the evacuations resembling "coffee-grounds," afterwards succeeded by exhaustion, collapse, and death. Analyses of the water and soil were made for the purpose of detecting any deleterious metal or other irritant poison. No satisfactory result followed, and the cause of the illness continued mysterious and inexplicable. At length it was mentioned that the ewes occasionally slipped their young, which gave a remote suspicion that the cause might be due to ergotism. An immediate inquiry was made as to the presence of gangrene, when the significant remark was made that, although the farm was on a dry sandy slope, yet the sheep always had the foot rot, even in the summer, defying all the remedies that in other cases proved effectual. The lambs, when feeding, were noticed to avoid the old matured plants, but greedily to devour the young green ones.

The plants were next examined, and on many of the older plants well-formed dark purplish ergots were found projecting from the spikes, but not a single specimen was discovered on the young plants. Sections of these ergots exactly coincided with the beautiful engravings of Tulasne in the *Ann. Sc. Nat.*, 1853, in his paper *Sur l'ergot des Glumacées*. The observations were then continued as the seasons gave opportunity. On April 12, 1878, the author obtained some young specimens of *Lolium perenne* in which was visible the commencement of the inflorescence. He then made several sections of caryopsides, on the pistils of which were many thousands of conidia, which seemed to rapidly multiply and completely fill the caryopsides till they protruded far beyond the glumes. In two or three days the sclerotium began to assume a purplish tinge. It had now arrived at what was formerly called the sphacelium stage, and was oblong and soft, while the upper part of the fungus was wrinkled. The exterior was white, from the growth of the mycelium, the hyphæ of which seemed to grow with marvellous rapidity, till at length only a very small portion of the pistil remained. Although the conidia were so numerous, none were noticed on the androecium, even when examined with a $\frac{1}{8}$ -inch object-glass, while all around the affected caryopsis was destroyed and completely filled with the conidia, which are blunt, elliptical little bodies, about $\frac{5}{1000}$ to $\frac{7}{1000}$ mm. in length, and from $\frac{3}{1000}$ to $\frac{4}{1000}$ mm. in breadth. They are curved and divided by a septum, each containing a nucleus. On touching them with a drop of diluted sulphuric acid, a cilium, or small flagellum, was extended, which, when placed in water, had a vibratile motion. On examining suspected flour, bread, or pastry under the microscope, the conidia could almost always be observed, especially with the addition of a drop of chromic acid. In the third week of May several small drops of a syrupy substance were seen on the stem near the spike. If dissolved in a minute quantity of distilled water and placed under the microscope, the conidia could be easily seen; and hence, I suppose, gave rise to the supposition that the honeydew is intimately connected with the formation of the ergot by aiding the

growth of mycelium. But it most probably only attracts and adheres to insects, who carry the conidia to other spikelets, and thus spread the infection to other grains. This saccharine substance instantly reduces the cuprous solution of Trommer's test.

On July 18 fully formed and mature ergots were gathered. They had a dark exterior with a white interior, and gave the ordinary reddish infusion.

On August 1 one of the lambs was taken ill, with the usual inflammatory symptoms. The feet, also, in a few days had a gangrenous appearance, which did not seem to be alleviated by any of the usual applications of silver nitrate, carbolic or cresylic acid. One is strongly reminded of the "Clavillisation" so destructive among the flocks of Italy, France, and Moravia, and has often been supposed to have been a variety of variola.

The fungus has now reached the limit of its vegetative or myceloid growth, which plainly ends at the sclerotium stage of our mediæval agent called ergot, by which the embryo and most of the caryopsis have been destroyed. The hyphæ are now ready to spread in all directions, and thus extend the vegetable growth, from which only we derive the peculiar medical properties in their greatest intensity, and it is now that the greatest effects are evidently produced which are included under the name of ergotism. A post-mortem examination of the sheep showed the presence of the conidia among the substance looking like "coffee-grounds." The fungus, having now arrived at the stage of growth, awaits for appropriate weather and other suitable conditions for the fructifying stage. At the end of August one or two of the ergots that had fallen with the stems of the grass on the damp ground were placed for more convenient observation on the moist soil of a flower-pot. In a few days small excrescences were observed on the dark cuticle of the sclerotium, from which gradually emanated some stalks, which grew from $\frac{2}{3}$ mm. to $\frac{1}{2}$ mm. in length, each supporting a minute head 1 c.m. in diameter, in fact, furnishing good characteristic specimens of *Claviceps purpurea*.

It is not to be wondered at that these fungi should have received the names of sphæria or forrabia, because they so much resemble the growths frequently noticed on the heads of caterpillars or larvæ and used as medicine in China and Japan.

A very remarkable change now took place in the oil that was so permanent as long as the condition of sclerotium continued, but directly the mature claviceps appeared it oxidised and dried up, and was found no longer. The round heads of the fungus now became covered with a large number of minute dots, which became eventually the openings of pear-shaped sacs of the perithecium. If a section was made with a sharp scalpel, each sac or ascus was seen to be filled with a glutinous substance containing spores. These last adhered together, remained sticking to each ergot as a white powdery coating, and causing the production of many thousands of conidia on each ergot, and ready for the production of fresh mycelium in other caryopsides.

The deductions from this investigation were:—

1. That for medical purposes and for pharmaceutical preparations in the greatest activity ergot ought to be collected in the month of August and September.
2. That ergot attains its greatest intensity at the close of the "vegetative" growth of the fungus.
3. That the medicinal properties of the ergot lessen and begin to disappear as soon as the fructifying period commences.
4. That the growth of the fungus on the *lolium* appears to be identical both microscopically and chemically with that of the rye itself.

The PRESIDENT remarked that Mr. Stoddart had favoured them with an extremely suggestive and interesting paper; and he hoped some of the gentlemen present who were well acquainted with the subject would favour the Conference with their views upon it.

Mr. LUFF said that some months ago a young woman's stomach, in which ergot was found, was entrusted to him for investigation; and at the post-mortem examination it was seen that very rapid decomposition had set in within the space of 24 hours. He wished to ask Mr. Stoddart whether in the stomachs of sheep he had noticed the same rapid decomposition. In the case of the young woman's stomach the medical witnesses endeavoured to prove that the presence internally of ergot was established by the rapid decomposition. His second question might appear a rather peculiar one.

They would remember that a sheep really had four stomachs; and he wished to ask Mr. Stoddart whether he noticed if the absorption of poison took place in the second stomach or in the fourth stomach.

Mr. THRESH asked whether the same fungus produced the ergot in the rye as in the rye grass, and whether the one matured at the same time as the other.

Mr. GREENISH regarded the subject as one of extreme interest to pharmacists, inasmuch as ergot was the only fungus noticed in the Pharmacopœia; and to investigate the subject properly a man really required a knowledge of botany and a knowledge of the microscope and of fungi. The ergot referred to by Mr. Stoddart in his paper was not the ergot of rye, and it appeared to have been exceedingly active and poisonous. He had seen lately in their museum specimens of the ergot of *Diss* from Algeria, and they were longer and thinner than the ordinary ergot of rye; and this kind was said to be a much more active ergot. They had not had sufficient of them to enable them to decide; but possibly they would be able to get any quantity from Algeria. Mr. Stoddart had remarked that the ergot on the young grass was very poisonous to sheep; and, therefore, he (the speaker) assumed that on the young grass it would not be the fully-developed ergot. At the same time Mr. Stoddart had stated that the ergot for pharmaceutical purposes would be best obtained when fully developed, and the fully-developed ergot could not be got until about the month of August. He asked Mr. Stoddart to explain how it was that the ergot was more active before it was fully developed, and why for pharmaceutical purposes it would be best not obtained until it was fully developed.

Mr. UMMY, commenting on a casual remark of Mr. Stoddart's to the effect that a preparation of ergot to be possessed of full medicinal value must either be ethereal or ammoniacal, referred Mr. Stoddart to the preparation as directed by the Pharmacopœia, which was neither the one nor the other. It was true that it prescribed ether, and that most wastefully, to extract a principle (the fixed oil), which, after the recovery of the menstruum by distillation, was rejected, for the marc, after this treatment, was exhausted with water, and the product was solely the base of the fluid extract. The preparation, therefore, must be said to be made with water and not with ether.

Professor ATTFIELD was of opinion that probably many cases of poisoning which had hitherto puzzled analysts would be explicable now that the facts which Mr. Stoddart had brought forward were known. A case which at the time was very puzzling came under his own notice a few weeks ago. Some heifers which had been turned into a particular pasture died, and he examined their stomachs, but could find no trace whatever of any of the ordinary poisons, or even of the unusual poisons. He advised the farmer to instruct a botanist to examine the pasturage for poisonous plants or plants which would be likely to produce irritation enough to cause death. He examined the stomachs microscopically as well as chemically, and he found present crowds of minute bodies which he now thought must be the conidia to which reference had been made. They were minute things, but seen very easily with $\frac{1}{4}$ -inch power. They were sausage-shaped, only thicker at one end than the other, and they afforded evidence of structure, although he did not minutely examine them as to that point. He believed they were identical with those alluded to by Mr. Stoddart.

Mr. STODDART, in reply to Mr. Luff, stated that he generally found that the blood was the first to putrefy, and he believed that what he had described as "coffee-grounds" was simply coagulated blood. Whenever in examining a stomach he found much congestion, he at once guessed strychnine. Whether they poisoned animals or men (laughter), decomposition would set in with strychnine sooner than with any other poison. He more fully explained his views on the growth of the ergot, and at the conclusion received the thanks of the Conference for his paper.

THE POLARIMETER AND ITS USE IN PHARMACY.

By Charles Symes, Ph.D.

IMPRESSED with the fact that the polarimeter is not so largely used as it might be with advantage in pharmacy, and having been at some amount of trouble in collecting details regarding its use and the various precautions necessary to be observed for obtaining correct results, Dr. Symes had deemed it desirable to embody these with the results of such practical experience as he had gained in the form of a paper for the Conference.

In 1818 Biot discovered the property possessed by certain liquids of rotating, or giving a spiral form to a ray of plane polarised light; he thoroughly investigated the subject, and laid the foundation of an important study. His instrument was, however, not capable of giving very accurate results, and an improved form, highly ingenious, but somewhat complicated, was introduced by Soleil, of Paris; the special use to which this was applied being the examination of solutions of sugar, the name "saccharimeter" was applied to it. Other forms, known as the polariscope and polaristrobometer, also improved forms of Soleil's instrument, have from time to time been introduced with a view to greater perfec-

tion in the results attainable. All manufacturers now discard the compensator, and place a rotating analyser in the centre of a graduated disc. Laurent, Dubocq, Hermann & Pfister, and Bryson are amongst the chief makers; the instrument used by the author is from the latter maker. It is fitted with a Jellet's prism as analyser, and is very accurate in its results, although less expensive than most others. Formerly daylight or light from an argand lamp was used, but this has now given place to the sodium flame, resulting in much less fatigue to the eye of the operator when observations are continued for any length of time.

The amount of rotation produced by any fluid (all else being equal) depends on the length of the column through which the polarised ray is made to pass, hence it is necessary, in stating results, to take some particular standard of length, that now recognised being 100 mm., and $[a]_D$ is used to indicate the molecular rotatory power of such a column at a temperature of 15.5°C. read by the sodium flame. Should the temperature of the fluid be higher than that indicated, the rotation will be diminished, as shown by Landolt, one of the most thorough investigators of this subject in the present day. He has also shown that when solutions are used it is necessary to have them highly concentrated, as dilution influences the rotation not always in direct proportion to the amount. The advantage of having certain commonly-occurring liquids, such as water, alcohol, ether, chloroform, &c., void of rotatory power will be obvious, inasmuch as it enables us to select a suitable solvent for any substance under examination. When highly coloured organic solutions are operated on, and charcoal is used to remove some of the colour, the first portions which pass through should not be used, as it is liable to be rendered weaker by the action of the charcoal. Very few inorganic bodies possess rotatory power.

The use of the polarimeter in the examination of diabetic urine has been recommended by Méhu and others. This, by the way, is a branch of our business which should be cultivated; it possesses considerable interest, and the remuneration is not subject to unfair competition from uneducated outside traders. The author's experience indicates that in this instance the results are not more accurate than those obtained by Fehling's or Pavy's tests.

The examination of essential oils is also highly interesting and instructive. Many years ago Dr. Pereira found that French oil of turpentine rotates to the left (— dextrogyrate), whilst the English or American oil rotates to the right (+ dextrogyrate). The author now further finds that English distilled otto of rose rotates to the right, whilst the finest imported rotates to the left, and that oil of savin acts similarly. This peculiarity in the case of turpentine enables us to ascertain whether an impure sample of oil of lavender, for example, has been adulterated in this country or abroad. By means of the polarimeter we are enabled to judge of the purity of otto of rose, seeing that its rotation differs from the geranium or grass oil with which it is usually adulterated, and by it we are able to ascertain the purity or otherwise of most of the alkaloids. Appended to this paper is a list of a number of essential oils with their specific gravity and rotatory power; some few, as indicated, are commercial specimens, whilst the majority have been specially obtained of reliable purity. Age does not materially affect the rotatory power of essential oils, but the least turbidity must be corrected by filtration if accurate results are to be obtained.

With solid substances a saturated solution is made in water or other suitable inactive medium, the specific rotatory power $[a]$ is found by dividing the observed rotation a by the length of the column in decimetres l , by the weight of the active substance in each unit of liquid w , and by the density of the solution d , thus:—

$$[a] = \frac{a}{exw \times d}$$

Specific Gravity and Rotatory Power of Essential Oils.

$$[a] = 100 \text{ mm. } 15.56^\circ \text{ C.}$$

<i>Oil of</i>	<i>Sp. Gr.</i>	<i>Rot. P.</i>	<i>Oil of</i>	<i>Sp. Gr.</i>	<i>Rot. P.</i>
Anise Pimp. ..	0.936	+1.00°	Almond, English ..	1.049	0
Anise Illic. ..	0.980	—0.82°	Almond, foreign ..	1.063	0
Ajowan ..	0.919	0	Almond, artificial..	1.152	0
Anjelica ..	0.897	+1.78°	Amber ..	0.859	+0.85°

<i>Oil of</i>	Sp. Gr.	Rot. P.	<i>Oil of</i>	Sp. Gr.	Rot. P.
Bay	0.904	-18.88°	Myrtle	0.898	+18.79°
Bergamot ..	0.872	+31.25°	Myrica	0.939	+6.59°
Birch	0.872	+2.18°	Neroli	0.873	+10.62°
Canada balsam	0.914	-30.07°	Nutmeg	0.988	+24.22°
Clove bark ..	1.052	-2.25°	Olibanum ..	0.872	-4.61°
Cardamoms ..	0.876	+14.59°	Origanum vulgare,		
Cedar	0.969	-3.00°	true	0.891	-30.27°
Cedar, commercial	0.968	-16.00°	Origanum, commer-		
Cedar, red ..	0.960	-28.75°	cial white ..	0.877	-16.20°
Caraway	0.940	-20.68°	Origanum, commer-		
Cassia, pure ..	1.053	-1.00°	cial yellow ..	0.877	-23.74°
Cassia, commercial	1.021	+2.02°	Origanum, commer-		
Cascarilla ..	0.888	+8.65°	cial red	0.876	-15.15°
Chio turpentine	0.889	+22.55°	Oreodaphne opifera		
Cinnamon ..	1.025	0	(from British		
Cinnamon leaf ..	1.060	0	Gniana)	0.917	+27.56°
Citron	0.901	+38.31°	Orange, sweet ..	0.848	-16.40°
Cherry laurel ..	1.046	0	Orange bitter ..	0.856	-2.30°
Citronelle	0.881	0.81°	Orange bitter ..	0.850	-3.10°
Cloves, English ..	1.064	+0.50°	Patchouli, French..	0.938	-57.10°
Cloves, foreign ..	1.064	+0.32°	Patchouli, Penang	0.970	-48.26°
Camomile, English	0.906	-0.95°	Parsley	1.000	-8.90°
Camomile, foreign	0.910	+6.16°	Parsley seed	0.945	-14.75°
Coriander	0.876	+10.65°	Pennyroyal, English	0.945	+7.10°
Cumin	0.933	+4.29°	Pennyroyal, foreign	1.019	-8.30°
Cajuput	0.924	-1.52°	Pennyroyal, Ameri-		
Cubeb	0.924	-29.07°	can	0.938	+29.82°
Copaiba, new ..	0.920	-13.50°	Pimento	1.036	+2.35°
Copaiba, old ..	0.920	-12.52°	Peppermint, English	0.912	-21.23°
Camphor	0.956	+7.87°	Peppermint, foreign	0.924	-7.49°
Dill	0.860	-6.24°	Peppermint, Japa-		
Elemi	0.867	-3.65°	nese	0.880	-21.81°
Encalyptus ..	0.881	-36.30°	Petit grain	0.900	-4.14°
Eucalyptus ..	0.912	-42.33°	Rhodinum	0.931	-10.25°
Erigeron	0.885	+72.41°	Rose otto, distilled		
Fennel	0.998	+25.71°	in England ..	0.854	+2.50°
Geranium, French	0.906	-6.75°	Rose otto, finest		
Geranium, Turkey	0.880	+1.72°	imported	0.877	-3.15°
Geranium, Indian	0.896	0	Rose otto, common	0.867	+1.50°
Geranium, Spanish	0.911	-4.45°	Rosmary, English	0.881	-16.47°
Ginger, Eng. dist..	0.853	-27.15°	Rosmary, foreign	0.952	+4.47°
Ginger, imported ..	0.907	-65.00°	Rue	0.886	-3.61°
Ginger grass ..	0.951	+39.65°	Sassafras, English		
Hyssop	1.005	-23.63°	distilled	1.072	+2.64°
Hops	0.890	+1.42°	Sassafras, commer-		
Horsemint, American	0.934	-0.76°	cial	1.084	+2.64°
Jaborandi	0.879	-4.16°	Sandal wood, Eng-		
Juniper, English ..	0.882	-5.00°	lish distilled ..	0.958	+2.36°
Juniper, foreign ..	0.855	-18.71°	Sandal wood, foreign	0.986	+8.29°
Lavender, English			Spearmint, English	0.950	-30.28°
new	0.887	-8.29°	Solidago odora ..	0.912	+10.53°
old	0.903	-8.45°	Savin, English ..	0.927	-32.78°
Lavender, foreign			Savin, foreign ..	0.884	+2.25°
petal	0.876	-5.93°	Sweet flag	0.926	+14.31°
Lavender, foreign			Sweet flag, commer-		
spike	0.880	+13.75°	cial	0.957	+19.60°
Lemons, best com-			Sage	0.925	+12.23°
mercial	0.856	+52.05°	Silver fir	0.864	-14.18°
Lemons, extracted			Scotch fir	0.886	-9.78°
by spirit	0.852	+57.23°	Tansey	0.923	+29.48°
Lemons, distilled ..	0.848	+22.10°	Thyme	0.891	-10.60°
Lemons, obtained			Turpentine, Ameri-		
by sponge process			can	0.870	+14.30°
(Hanbury) ..	0.957	+24.26°	Turpentine, French	0.938	-25.35°
Limes	0.887	-43.80°	Verbena	0.890	-2.61°
Lign aloë	0.925	-2.45°	Valerian	0.971	-31.50°
Mustard	1.000	0	Wintergreen ..	1.162	+0.81°
Mustard, artificial..	1.010	0	Wormwood	0.971	+17.43°
Myrrh	0.989	-59.06°	Worm seed	0.941	-8.53°
			Ylang-ylang ..	0.936	-20.10°

The PRESIDENT said they had been favoured by Dr. Symes with an extremely interesting paper, which suggested many questions and observations from those who had heard it.

Mr. STODDART gave interesting details of experiments he had made with the polarimeter in the extraction of sugars.

Mr. UMNEY alluded to the views entertained by Daniel Hanbury, and as expressed by him in the Pharmacographia, and said he himself should expect to get a different result from Indian grass oil (geranium?) than from true geranium oil obtained from the South of France.

Professor ATTFIELD reminded the Conference that all the substances, or nearly all the substances, that Dr. Symes had examined were mixtures of distinct things. The polariscope was extremely useful in examining a solution of a single substance such as sugar; but less so in other cases unless they knew the polarising power of the constituents of the mixture. At the same time Dr. Symes' observations would be useful if they were multiplied; especially as a substance such as essential oil, when properly obtained and pure, might give a fair average amount of rotation to a polarised ray of light. He thought, however, that many observations would be necessary on the same essential oil before they could trust the figures given to them. He hoped Dr. Symes would be encouraged to continue the subject; and said if a cheap instrument were introduced more pharmacists might be induced to make investigations which would lead to useful practical results.

The PRESIDENT reminded the Conference that Dr. Symes had spoken of the use of the polarimeter in detecting sugar in urine. He should like to ask to what degree of dilution he could use the instrument with satisfactory results. He had no doubt Dr. Symes had had to go through a series

of investigations from the same cause. Probably he had the satisfaction to find sometimes that the quantity of sugar secreted by the patient became gradually less; and that it was a point of very nice discrimination to determine when the last trace of sugar disappeared altogether. Probably Dr. Symes had found, as he (the President) and many others had found, that before sugar was lost altogether it became very difficult to estimate its exact percentage by the ordinary process they had at hand. He had found that when sugar existed to an extent of more than 1 per cent. in urine it was difficult to determine the exact percentage by the ordinary process. If the polariscope would detect more minutely the exact proportion when it arrived at such a degree of dilution it would be very beneficial.

Dr. SYMES, in replying upon the discussion, stated that reading sugar solutions for commercial purposes was in itself almost a profession. Dilute solutions did not give satisfactory results. He hoped, with others, to go on with the study of the polarimeter, and that eventually they would be able to make something still more useful of the subject.

Dr. Symes was heartily thanked for his paper.

THE APPLICATION OF CHLOROFORM IN THE TESTING OF DRUGS.

By L. Siebold.

In the "Year-Book of Pharmacy" for 1877 there occurs an abstract of an article by Dr. C. Himly, on the "Detection of Mineral Adulterants in Flour by means of Chloroform." The author had frequently tried this test, and, finding it extremely useful both as a qualitative and a quantitative process, it appeared desirable to ascertain to what extent it might be advantageously employed in the testing of powdered vegetable drugs. As many of the latter are lighter than chloroform, and the usual mineral adulterants sink in that liquid, it was but reasonable to infer that this mode of separation might prove of value to the pharmacist.

In each experiment made a small quantity of the dry powder was well shaken with about half a test-tubeful of chloroform, and the mixture allowed to stand at rest for 12 hours. The following drugs were found to rise so completely to the surface of the chloroform that the observation and estimation of any mineral adulterant became a very simple and easy task:—acacia, tragacanth, starches, myrrh, Barbados aloes, jalap, saffron, cinchona, nux vomica, mustard, white pepper, capsicum, and guarana. Known quantities of selenite and of chalk were added to these drugs, and subsequently determined by running the lower stratum of the chloroform with the sediment into a small dish, carefully pouring off the chloroform, and weighing the sediment after drying it at a gentle heat. The result in each case was very satisfactory. No such accuracy could be attained by incineration, as in the presence of chalk there was always a loss of carbonic acid, and in that of selenite a loss of water and of oxygen, the sulphate being partly reduced to sulphide. An estimation of these adulterants by the usual analytical processes would of course give exact results, but proves much more tedious.

In the case of the following substances no complete rise to the surface of the chloroform took place, but a portion was found to float and another portion to sink, though the absence of mineral adulterants was proved by analysis:—Gamboge, scammony, opium, Socotrine aloes, liquorice root, ginger, colocynth, ipecacuanha, cinnamon, and cardamoms. Of the last two by far the greater portion was found to sink in chloroform. But even in these cases the test is not altogether without value, for a careful inspection of the sediment will show whether or not it is a mixture of various substances differing in appearance, weight, &c. The mineral adulterant will generally, in such a case, form the lowest stratum of the sediment. A comparison with a genuine sample helps in such cases to arrive at a correct conclusion. Moreover, the chemical examination of the sediment gives results which cannot always be obtained by testing the ash. Take the case of cinnamon, for instance, which contains organic calcium salts. These, upon incineration, leave calcium carbonate, and a qualitative analysis of the ash would therefore fail to show whether this calcium carbonate was solely the result of ignition, or whether a part of it pre-existed in the cinnamon powder as an adulterant; while the addition of hydrochloric acid to the lowest stratum of the chloroform sediment would settle this point at once. It is, however, in the case of the drugs first named, that the test was specially recommended to pharmacists.

THE BEHAVIOUR OF IODINE TO CHLOROFORM, AND A NEW TEST FOR THE DETECTION OF ALCOHOL IN CHLOROFORM.

By Louis Siebold, F.J.C., F.C.S.

EVERY chemist knows the beautiful purple colour of a solution of iodine in chloroform. It does not seem to be generally known, however, that this colour varies with the degree of purity of the chloroform employed, and that this variation of colour is due to the presence or absence of alcohol. A solution of iodine in pure chloroform is deep purple-violet, or, if very weak, it is purplish pink, while a solution of the same substance in alcohol is brown, red, or yellow, according to its strength. In solutions of iodine in mixtures of chloroform and alcohol the colour of the alcohol solution so predominates over that of the chloroform solution that the presence of even a small percentage of alcohol may be readily recognised in a sample of chloroform by comparing the colour of its iodine solution with that of a solution of iodine in perfectly pure chloroform. This mode of testing, however, would necessitate the use of exactly equal proportions of iodine, and of iodine of the same quality and purity, as otherwise the difference in the depth of coloration would materially interfere with the result. The following *modus operandi* is, therefore, proposed, which, on the strength of numerous trials, the author recommends as a very simple, expeditious, and reliable one:—

Introduce a small quantity of iodine into about 10 to 15 c.c. of the chloroform to be tested, shake until the solution has acquired a deep purple or purplish red colour, not so deep, however, as to render it opaque, and decant the solution from the undissolved iodine. Divide the solution into two equal parts, which place in two separate test tubes of equal diameter; shake one with about four times its volume of water, and keep the other as it is, for comparison. The water will absorb the alcohol, and what settles down is a solution of iodine in pure chloroform, the colour of which will be exactly the same as that of the other portion if the chloroform was pure, but will distinctly differ from it if the sample contained alcohol. With 2 per cent. of alcohol or more the difference of colour is very striking indeed; with 1 per cent. it is very distinct; and in the presence of only $\frac{1}{2}$ per cent. it is still clearly discernible. By resorting to distillation, $\frac{1}{2}$ per cent. and even less of this impurity may be detected by using the first portion of the distillate for the test. It is a curious fact that, though chloroform boils at 62°C., and alcohol not under 78°C., the first portion of the distillate is richer in alcohol than the original sample, and that the distillation, if continued, finally leaves pure chloroform quite free from alcohol in the retort. The cause of this must be sought in the different densities of the vapours of alcohol and chloroform, that of the former being 23, while that of chloroform is nearly 60. Probably, however, the test as above described, without the trouble of distillation, is sufficiently delicate for all practical purposes, and will commend itself to pharmacists especially, on account of its simplicity and ease of application.

Mr. UMNEY admired, as a chemist, the very excellent test that had been placed before them. As a pharmacist, however, he should like to add a word of caution. Absolutely pure chloroform had a specific gravity of about 1.500, but the Pharmacopœia recognised a chloroform of 1.490 specific gravity: this meant the presence (he had just determined by calculation) of about one per cent. of alcohol. Now as he saw gentlemen in the room who held positions as public analysts, he would like to add that the Pharmacopœia evidently sought for a prescribed full medicinal purity, but did not push this to the extreme limit of chemical purity. In a word, chloroform must not necessarily be condemned because it gave the colour test, for which they were indebted to Mr. Siebold.

Mr. STANFORD stated that for some years he had discarded the use of chloroform for testing iodine, and had substituted for it bisulphide of carbon.

Professor ATTFIELD gave as his experience that there was little or no adulteration in powdered drugs; and he invited an expression of opinion from Mr. Siebold on that point.

Mr. SIEBOLD when replying upon the discussion said he had observed adulteration of powdered drugs in the course of his experiments, but not in many cases. He had had to adulterate them himself for his

own purposes. He had found commercial chloroform a very pure article.

At the invitation of the President Mr. Siebold was thanked for his papers.

NOTE ON THE SPECIFIC GRAVITY OF LIQUIDS.

By L. Siebold.

THE author records the results of a number of experiments proving that the hydrometer affords reliable indications of the specific gravities of liquids, no matter whether their gravity is due to dissolved or to suspended matter.

THE EXTRACTION OF PILOCARPINE.

By A. W. Gerrard, F.C.S.

THE following was the substance of this paper, which in the absence of Mr. Gerrard was read by Mr. Benger:—

Having worked considerable quantities of jaborandi leaves during the past year for the alkaloid pilocarpine, the author had varied his process on three occasions with the view of obtaining the most economical results.

Extraction of the leaves with water was tried and abandoned for the reason that the watery extract contained such an abundance of albuminoids that the washing of the alkaloid therefrom with alcohol could not be satisfactorily accomplished.

In his original process for making pilocarpine—which is exhaustion of jaborandi with 84 per cent. alcohol, and treating with water, ammonia, and chloroform—Mr. Gerrard found that on addition of the ammonia much brown colouring matter separated, and the author inferred from this that if the drug were treated at once with ammoniated alcohol the absence of much of the colouring matter in the percolate would be secured. The experiment was tried, and the jaborandi exhausted with alcohol containing 2 per cent. of strong ammonia, and the spirit recovered by distillation; the extract was treated with water, evaporated, and then treated with chloroform, and the residue of crude alkaloid converted into nitrate. The process proved very satisfactory, and as surmised, much of the brown colouring was excluded and a yield of .7 per cent. of nitrate of pilocarpine obtained, a larger yield than by any previous working.

To purify nitrate of pilocarpine it is usual to crystallise from boiling alcohol. The mother liquors of these workings will still contain much alkaloid, but it may be recovered by removing the spirit and allowing to stand a few days, when it will solidify into a dark pasty, semi-crystalline mass. This diluted with water deposits flocculi of colour; the clear solution now evaporated will readily crystallise, and the crystals made pure as previously mentioned with boiling alcohol.

Mr. Gerrard found the yield of alkaloid very variable in different samples of jaborandi, thus .3, .5, and .7 per cent., and he argues that results of this kind show how important it is that definite principles be used as remedial agents, such as is to be obtained in the alkaloid pilocarpine, the most certain and powerful diaphoretic known in the materia medica.

Mr. MARTINDALE opened the discussion by stating that, having worked at pilocarpine, he thought he had a prior claim to Mr. Gerrard of having first purified the crude crystal of nitrate of pilocarpine. When Mr. Gerrard read his paper at Bristol he exhibited specimens of nitrate of pilocarpine which was contaminated with uncrystallisable matter. Towards the end of 1875 he worked some bark and stem of jaborandi, from which he got two drachms of crude pilocarpine; and on January 18, 1876, he dissolved it in 1 oz. of absolute alcohol, and added 15 minims of nitric acid, previously diluted with the same quantity of distilled water. The small crystals separated readily, and were purified by pouring off the spirit and dissolving in boiling absolute alcohol, from which they separated free from colour. A quarter of a grain administered by the mouth produced the usual perspiration and salivation in 40 minutes, and the action was over in three hours. He had been informed by a physiologist, who had given a great deal of attention to the subject, that pilocarpine did not produce all the action of jaborandi. It possessed sinologic and diaphoretic properties, but did not produce the same action on the heart as the extract of jaborandi. That was probably the effect of a second alkaloid. He should have been glad to have asked Mr. Gerrard if he had examined the uncrystallised residues obtained in making this nitrate of pilocarpine.

Mr. WILLIAMS remarked that Mr. Gerrard had suggested a new and very

important process by which they could get a better yield at a smaller expense of spirit.

The thanks of the Conference were voted Mr. Gerrard for his paper.

It was now five o'clock, and some other formal business having been transacted, the Conference adjourned until next morning.

SECOND DAY.

ON THE VALUATION OF CITRATE OF IRON AND QUININE.

By Frederick W. Fletcher, F.C.S.

THE author said that observations have hitherto been confined, with scarcely an exception, to the determination of the total alkaloid present in the citrate, without regard to its purity as quinine. He had adapted to this salt the process described by Dr. Paul for testing quinine, in the valuable paper which he communicated to the Pharmaceutical Society at an evening meeting in February, 1877. Dr. Paul had stated that a sample of sulphate of quinine, containing an admixture of no less than 30 per cent. of cinchonidine, might, if examined by the Pharmacopœia test, be passed as pure quinine. The author had found 10, 15, and even 25 per cent. of sulphate of cinchonidine in foreign quinines, which would, however, pass the Pharmacopœia test. Nor will the Pharmacopœia test detect cinchonidine in citrate of iron and quinine. The alkaloid obtained from the citrate in the manner directed in the Pharmacopœia will dissolve in pure ether, even though 25 per cent. of its weight is cinchonidine. The adaptation of Dr. Paul's plan of fractional crystallisation, which the author had devised, is easy of application, and although a considerable quantity of the citrate has to be operated upon, there is little or no loss of quinine, most of the alkaloid being recovered as sulphate. It has, moreover, the advantage of combining three operations in one, as the results indicate:—(1) The exact amount of anhydrous alkaloid; (2) the proportion of the latter which can be converted into crystallisable sulphate of quinine, and (3) the percentage of alkaloids other than quinine.

The operations involved are briefly as follows:—Place 20 grammes of the citrate in 100 c.c. flask, dissolve in 50 c.c. of distilled water, and add gradually an excess of ammonia (960), shaking well after each addition. This is important, in order that the quinine may separate in a state of fine division, as otherwise it is apt to be thrown out in tough lumps, difficult of subsequent solution. Pour in 25 c.c. of washed ether, and agitate with a rotatory motion till the alkaloid has completely dissolved. Transfer the mixture to a small glass separatory funnel, and having run the lower stratum of liquid back into the flask, pour the ethereal solution into 100 c.c. platinum capsule. Treat the liquid in the flask with 20 c.c. more ether, and proceed as before. Repeat this operation a third time. The capsule containing the mixed ethereal solutions is then placed in a saucer of water, and the ether blown off by a current of air from a Fletcher's bellows. This immersion of the capsule in water obviates the tendency of the ether to creep up the sides. The platinum dish, which will now contain a pasty residue, is next placed in the air-bath, previously heated to 120°, and in 15 minutes desiccation is complete. After cooling in an exsiccator, the capsule is covered and removed to the balance. The weight, minus that of the capsule and cover, multiplied by five, is the percentage of total alkaloid. The author had made many hundreds of analyses by this process, and in cases where a determination had been repeated had never found the results vary more than 0.1 per cent. When an estimation of total alkaloid only is required, 2 grammes of citrate is a sufficient quantity to operate upon.

The anhydrous alkaloid is now to be converted into basic sulphate. According to calculation the weight of anhydrous alkaloid in grammes is multiplied by 30.86, and the number of c.c. of decinormal sulphuric acid thus indicated are run into the platinum capsule from a burette, and the former being placed on wire gauze over the flame of a rose burner, the contents are briskly stirred until the alkaloid is all taken

up, and a clear solution obtained. This is then transferred to a flask and allowed to cool spontaneously. The crystalline mass which will have formed is thrown on a small calico filter, about 3 inches square, stretched over a beaker, and, when drained, tightly squeezed to remove the last few drops of liquid. The latter is then filtered into a stoppered graduated tube of about 150 c.c. capacity, and its volume noted. Twenty c.c. washed ether and an excess of ammonia are then introduced, and the whole, after being well agitated, set aside for six hours.

In the meantime the squeezed residue is detached from the calico filter, and dried in the air-bath at a temperature of 100° C. The weight multiplied by 1.18 represents its value as crystallised sulphate of quinine. To this is added the amount of the latter contained in the mother liquor which has been separated (and which may be estimated to contain 1 part in 750), and the total will then represent the proportion of anhydrous alkaloid which can be converted into sulphate.

At the expiration of the time mentioned, the tube which has been set aside is examined, when the cinchonidine and quinine present will be found to have crystallised out, at the junction of the two liquids. The stratum of ether is removed by a small Nessler pipette; the crystals washed with two successive portions of 10 c.c. of ether, the last few drops of which can be absorbed by a little roll of filter paper. The crystals are then thrown upon a double-tared filter, made of two papers weighed one against the other, by cutting down the heavier, dried at 120°, and placed on the balance, the outside paper acting as a counterpoise. In practice the author finds that the weight of this first crop of crystals represents on an average two-thirds of the total cinchonidine or quinine present. If, therefore, the amount does not exceed 1 gramme, the percentage of these alkaloids may be estimated to be below 5 per cent. Should the first weighing exceed this limit, the sulphate obtained from the first crystallisation must be dissolved in 100 c.c. boiling water, and treated as before, the weight of alkaloid separated by ether being of course added to the amount first obtained.

As thus described, the process may seem tedious, but in reality it is not so. Not counting the time which must be allowed for crystallising, the entire estimation may be completed in something under two hours. The method, of course, does not distinguish between quinine and cinchonidine, the usual tests for which must be applied to the solution of the mixed sulphates. This, however, is a point of minor importance. Two examples will be sufficient to illustrate the working of the process.

Descriptions of experiments were then given, and the author added in conclusion:—

Whether the presence of 5, 10, or 20 per cent. of cinchonidine would bring a sample of citrate of iron and quinine, which nevertheless answered the B.P. test, within the reach of the Adulteration Act is a point upon which I offer no opinion. An eminent analyst with whom I was lately discussing the point took the negative view. If such is really the case, a revision of the Pharmacopœia will come none too soon. The plausible excuse which is sometimes set up that manufacturers cannot perfectly separate the cinchonidine from the quinine except at a greatly enhanced cost is utterly without foundation. The white sulphate manufactured both by Messrs. Howard and Mr. Whiffen I have never found to give the slightest reaction with Paul's test, and, what is a still more striking fact, the so-called unbleached quinine of the latter maker is frequently quite free from cinchonidine. Certain of the foreign makers are also, as a rule, unimpeachable in this respect, whilst, on the other hand, some others are systematically adulterated.

It may be worth noting, as a matter of practical interest, that the substitution of 1 per cent. of cinchonidine for quinine in the manufacture of citrate of iron and quinine reduces the value $\frac{1}{3}$ d. per oz. for each such addition; and when it is remembered that the Pharmacopœia test will easily pass 20 per cent. of cinchonidine, and that the consumption of the citrate is considerably over 100,000 oz. per annum, the valuation of this preparation becomes a question of commercial as well as of chemical interest.

THE PRESIDENT described the paper as useful and practical, and as they had practical manufacturers of the article present it would be interesting to hear what they had to say on the subject.

Mr. UMNEY referred to a paper he had contributed to the *Pharmaceutical Journal* (August 30, 1873), which went to show that the Pharmacopœia tests for citrate of iron and quinine were written somewhat in a haze. Those who remembered citrate of iron and quinine before it became official would bear him out that it was customary for the labels to state, "This preparation contains an equivalent of 25 per cent. of sulphate of quinine"; or it was stated that the preparation contained 16 per cent. of quinine. The compilers of the Pharmacopœia presumed that from one part of quinine they would obtain, with the proportions of iron, citric acid, and ammonia, four parts of citrate of iron and quinine. He knew as a manufacturer that following strictly the directions of the Pharmacopœia, for 100 oz. of sulphate of quinine, 445 to 450 oz. of citrate of iron and quinine could be produced. The starting-point, therefore, was wrong, and it was absolutely impossible to work a preparation by that form that would contain the equivalent of 25 per cent. of sulphate of quinine. This he had already pointed out, and he had no doubt some alteration would be made in this respect in a future edition of the Pharmacopœia. He pointed out that the tests given in the Pharmacopœia were not to be relied upon; and argued that, unless they were revised, they might one day find themselves landed as pharmacists in great difficulty with public analysts. One of these gentlemen had informed that Conference that it would be a negative result. Mr. Fletcher had referred to the dissolving of cinchonidine by ether; and had the Pharmacopœia limited the quantity of ether used they might have prescribed the ether test with advantage for the detection of cinchonidine, when present in citrate of iron and quinine. The paper was an important one; and the observations it contained on the revision of the Pharmacopœia were not the least important part of it.

Mr. MASON said that the object of buyers was to obtain a salt which would yield 16 per cent. of quinine.

Professor ATTFIELD remarked that it was only fair to the editor of the British Pharmacopœia to say that at the meeting of the Conference in Glasgow he admitted that the test for citrate of iron and quinine was not all that could be desired, and was quite ready to admit that it was important to carry it a step further, so that they might arrive at more accurate results.

Dr. SENIER observed that it had been frequently pointed out that even in cases where pure quinine sulphate was employed in the preparation of citrate of iron and quinine a great loss occurred in precipitation and conversion into citrate. If, therefore, they followed the Pharmacopœia directions, it would practically be impossible for the scale preparations to contain the whole of the quinine commenced with. Indeed, the loss was frequently as much as 10 per cent. He wished to ask whether there was any objection, commercial or otherwise, to the substitution of citrate of quinine to commence with in the next edition of the Pharmacopœia.

Dr. SYMES observed that it had been clearly shown with regard to this important preparation that the Pharmacopœia gave a process which would not produce the article it described, and that the tests given would not detect a large percentage of impurity if present. He thought this a good illustration of the necessity which had already been pointed out for a new edition of the British Pharmacopœia, and he considered in justice to pharmacists this should be proceeded with much more vigorously than appeared to be the case.

The PRESIDENT said the discussion seemed to indicate how desirable it was in the re-arrangement of the next Pharmacopœia that pharmacists proper should be well represented. He hoped they would accord to Mr. Fletcher a cordial vote of thanks.

Mr. FLETCHER said he quite agreed with Mr. Umney that the Pharmacopœia test was not in any respect satisfactory; and if they proceeded according to its directions, the yield of citrate would not represent 16 per cent. of quinine, that was to say of anhydrous quinine. Mr. Umney had stated that it required four or five hours to obtain perfectly anhydrous quinine; but he (Mr. Fletcher) had found that, after blowing off the ether, if the capsule containing the alkaloid were placed in a bath at a temperature of 120°, in ten minutes the quinine was entirely anhydrous. With respect to the remarks made by Mr. Mason, he pointed out that the quinine obtained by the Pharmacopœia test was in the form of a trihydrate, 16 parts of which were equivalent to 13·7 parts of anhydrous quinine.

The thanks of the Conference were voted to Mr. Fletcher.

NOTES ON PETROLEUM SPIRIT OR "BENZOLINE."

By Alfred H. Allen, F.I.C., F.C.S.

THE application of the commercial names "benzoline" and "benzine" to the more volatile portion of petroleum has led to great confusion between petroleum spirit and coal-tar naphtha, the most characteristic constituent of which is the hydrocarbon *benzene* or *benzole*.

Although presenting close general resemblances, the following characteristic differences exist between petroleum spirit and coal-tar naphtha. All the tests given have been

carefully verified by the author on representative samples of petroleum spirit and coal-tar benzole.

Petroleum Spirit, "Benzoline," or "Benzine."

1. Consists of *heptane*, C_7H_{16} , and its homologues.
2. Heptane contains 84·0 per cent. of carbon.
3. Commences to boil at 54° to 60° C.
4. Specific gravity at 15·5° C. about '69 to '72.
5. Smells of petroleum.
6. Dissolves iodine, forming a solution of a raspberry-red colour.
7. Does not sensibly dissolve coal-tar pitch, and is scarcely coloured by it, even on prolonged contact.
8. When shaken in the cold with one-third of its volume of fused crystals of absolute carbolic acid, the latter remains undissolved, and forms a separate lower stratum.
9. Requires two volumes of absolute alcohol, or four or five volumes of methylated spirit of '828 specific gravity, for complete solution at the ordinary temperature.
10. Warmed with four measures of nitric acid of 1·45 specific gravity the acid is coloured brown, but the spirit is little acted on, and forms an upper layer.

Coal-Tar Naphtha, or "Benzole."

1. Consists of *benzene*, C_6H_6 , and its homologues.
2. Benzene contains 92·3 per cent. of carbon.
3. Commences to boil at about 80° C.
4. Specific gravity about '88.
5. Smells of coal-tar.
6. Dissolves iodine, forming a purple-red liquid of the tint of an aqueous solution of potassium permanganate.
7. Readily dissolves coal-tar pitch, forming a deep-brown solution.
8. Miscible with absolute carbolic acid in all proportions.
9. Miscible with absolute alcohol in all proportions. Forms a homogeneous liquid with an equal measure of methylated spirit of '828 specific gravity.
10. Completely miscible with four measures of nitric acid of 1·45 specific gravity, with great rise of temperature and production of dark brown colour.

The greater number of the above tests are valueless when applied to mixtures of petroleum and coal-tar naphthas, but No. 10 is capable of giving quantitative results if the treatment with nitric acid be conducted in a small flask and an inverted condenser attached, to prevent loss of vapours. When action has nearly ceased, if the liquid be poured into a narrow graduated tube, the measure of the upper layer indicates with approximate accuracy the amount of petroleum spirit present. If the proportion of benzene is considerable, the nitrobenzene produced may not remain completely dissolved in the nitric acid, in which case it rises and forms a layer of a dark brown colour below the stratum of petroleum spirit. Nitrobenzene and petroleum spirit are readily miscible in the absence of nitric acid, but agitation with strong nitric acid dissolves out the nitrobenzene, a portion of which may rise and form an intermediate layer as above described.

By fractional distillation, the author found that the proportion of heptane, C_7H_{16} , present in commercial benzoline probably equalled, or even exceeded, that of all the other constituents.

The PRESIDENT regarded the paper as an exceedingly useful and able contribution, and he invited discussion upon it from those who had a closer knowledge of this particular class of chemicals than he himself possessed.

Professor TIEBORN bore testimony to the great value of the paper Mr. Allen had read, and said he should be glad if that gentleman would answer two questions. He had mentioned that the solvent action of benzole and American light oils was different as regarded pitch. He presumed Mr. Allen alluded to coal-tar pitch. There were two pitches, and one which was extensively used in road-making in Ireland was procured as a residue in distilling the American oils. It was probable that that pitch would behave in the same way as regarded the heptane as the coal-tar pitch would behave as regarded benzole—it would be soluble. He asked Mr. Allen if he had tried any experiments as regarded the action of these two solvent bodies upon creasote, and whether there was any difference. They knew that creasote was frequently adulterated with carbolic acid, and he asked if there was any means of distinguishing the adulteration by means of these solvents of creasote and carbolic acid.

Dr. SYMES remarked on the difference in the smell of the two bodies under consideration; and said if they were compared the odour would be found to be a very satisfactory test of the difference between the two. If the mixture was agitated with water there always seemed to be sufficient evidence not of the quantity, but of the presence of petroleum spirit. He pointed out that for the extraction of chrysarobine, from *anaroba*, the solvent properties of benzole were much greater than those of petroleum spirit, and a much larger yield was obtained. He thought it exceedingly desirable to know thoroughly well what they were using when they presumably used either petroleum spirit or benzole. A quantitative test that would readily detect any adulteration of one with the other would be valuable.

Professor ATTFIELD remarked that some of the commercial products of petroleum admitted of being so cleaned that he doubted if they could be detected in benzole by their odour.

Mr. J. T. Dobb asked Mr. Allen if the pitch he used to ascertain the solubility was Swedish, Stockholm, or mineral pitch. He had found in the distillation of tar that a residue was left of mineral pitch, which was only partially soluble in petroleum spirit, but it was perfectly soluble by coal tar naphtha.

Mr. ALLEN, in reply, said he used coal-tar pitch. It was probable that pitch from petroleum would dissolve in petroleum spirit better than the oil. Anthracene, one of the most characteristic constituents of coal-tar pitch, was much more soluble in benzole than petroleum spirit. He had not made any experiments on wood or petroleum pitch. He replied to the question on solubility by quoting from his paper at last Conference, and observed that he did not say it was pure carbolic acid, or that it was pure petroleum spirit. It took 10 measures of the spirit to complete the solution.

The PRESIDENT, in the name of the Conference, thanked Mr. Allen for his paper.

ON THE ESTIMATION OF WATER IN IODINE.

By Mr. E. Davies, F.I.C., F.C.S.

THE process consists in rubbing 20 grains of the iodine to be tested with about 60 grains of mercury in a small porcelain dish, using a small glass pestle and moistening with a few drops of absolute alcohol. When combination has taken place, which requires from one to six minutes, according as more or less water is present, the whole is dried in a desiccator over sulphuric acid for 12 hours. It is then weighed, and the difference between this weight and that of the dish, pestle, mercury, and iodine, gives the amount of moisture. When 20 per cent. of moisture is present the results are about 0.5 per cent. too high, but with small amounts the results are exact.

Professor ATTFIELD stated that he had made experiments on this subject, but had not yet arrived at any very satisfactory conclusion. The ordinary method of ascertaining the proportion of moisture in commercial samples of iodine was to dry, at as low a temperature as possible, a weighed quantity exposed on a watch-glass over a dish of sulphuric acid under a small bell jar; the loss in weight was then almost wholly due to water, scarcely any iodine escaping. He had endeavoured to collect and directly weigh the water by volatilising iodine through a tube containing a great excess of some metal, as iron, copper, &c., which he had hoped would arrest all iodine, and allow water to pass on to a chloride of calcium weighing tube; but in every experiment the water contained iodine. With regard to the loss of iodine observed by Mr. Davies when using his mercury method, it possibly was due to decomposition of the iodide of mercury by a little sulphuric acid, which was occasionally present in the iodine of trade. He hoped some more exact plan of estimating water in iodine would be discovered; possibly on the lines followed by Mr. Davies in his paper.

Mr. STANFORD said so far from the plan suggested being a new one he had adopted it two years. It was suggested by a professor of Bonn (he believed), and it had already appeared in more than one standard analytical work. His suggestion was to use eight times the quantity of mercury, and to use it dry. In practice they had found it preferable to use only five times the quantity of mercury, and had found it fairly correct.

Professor TICHBORNE said he had used the process for many years, and he preferred that of drying over sulphuric acid; and if a small bell jar were used the process became practically correct, or nearly so. The error in the loss of the iodine would depend in a great measure on the size of the vessel in which the iodine was dried. Perhaps the best means of performing the process in connection with mercury was to use it in excess, and to do it with a stopper bottle, shaking it up with the addition of alcohol; then there would be no loss from the volatilisation of the iodine.

Mr. STANFORD read a letter he had received on this subject from Mr. Tatlock, an eminent analyst of Glasgow, in which the following process was recommended:—"Place a weighed quantity of iodine in a weighed platinum capsule, in which has been placed a weighed quantity (say twice that of the iodine) of zinc sheet clippings in size about $\frac{1}{2}$ inch square, add a little water, and move the capsule and contents gently about. Immediately the iodine acts upon the zinc, the first small portion of iodide of zinc produced dissolving the free iodine, which is thus presented to the zinc in a dissolved state. The fluid by-and-by becomes colourless, after which the contents are carefully evaporated to dryness, and the dry residue heated till it ceases to lose weight, taking care that no iodide of zinc is volatilised, which, however, is not easy. With the clippings the temperature does not rise beyond control.

Professor FOSTER stated that the method he had adopted was to expose a weighed quantity of commercial iodine over sulphuric acid, observing the precautions pointed out by Professor Tichborne. Observing these precautions he thought the ordinary process met the re-

quirements of manufacturers, buyers, and sellers. The other methods were not so easy.

Mr. DRAPER asked what was the objection to the use of hyposulphite of soda?

Professor ATTFIELD replied that hyposulphite of soda answered very well when there were no other substances to be estimated.

ON THE PRESENCE OF TANNIN IN GENTIAN ROOT.

By Mr. E. Davies, F.I.C., F.C.S.

VARIOUS contradictory statements having been made with regard to the presence of tannin in gentian, the author made some experiments which show that tannin was contained in two specimens of root not ground, but was absent in a specimen of ground root. The amount of tannin in the root which contained most did not exceed 0.08 per cent.

There was no discussion on this paper, but Mr. Davies was thanked for his communication.

AMYLIC ALCOHOL AND AMYLIC NITRITE.

By D. B. Dott.

THIS communication was called forth by some strictures which appeared in an American contemporary* on the contribution of Mr. Dott to the work of last year's Conference. As the result of a lengthy series of experiments, the author considers the conclusions of his former paper to be confirmed in nearly every particular. These results are briefly:—

1. That amyl alcohol may be obtained from fusel oil, which alcohol distils entirely at 128° to 129° C., even in the most approved form of apparatus—as originally stated by A. Pedler.†

2. That it is extremely difficult to prepare amyl nitrite of nearly constant boiling-point; so that the boiling-point character of a liquid boiling at 96° C. is not a test which the commercial article can reasonably be expected to answer.

3. That amyl nitrite undergoes slight decomposition when distilled in presence of air, which is evidenced by the evolution of red fumes, and by the fact that the first distillate from the neutral nitrite is strongly acid.

The PRESIDENT thought Mr. Dott had completely succeeded in refuting the charges brought against him.

Mr. WILLIAMS confirmed the statement that nitrite of amyl did decompose by constant distillation. He also believed that amyl alcohol had a constant boiling-point; and was of opinion that nitrite of amyl used in medicine ought not to have a higher boiling-point than that given in the Pharmacopœia.

Professor TICHBORNE also spoke to the decomposition of nitrite of amyl in distillation, which fact, he said, had been first pointed out by himself in a paper published many years ago in *The Laboratory*. His opinion had then been disputed by Professor Wanklyn and others.

Mr. ABRAHAM spoke of the importance of the degrees being accurately observed in these experiments.

Mr. MACKENZIE inquired if nitrite of amyl became decomposed with keeping.

Mr. WILLIAMS believed, if properly attended to, it would keep, although he doubted if it were as good at the end as at the beginning of the year.

Mr. NAYLON stated that it could not be kept for any great length of time; and said he had known it turn acid when kept in a low temperature. He, however, did not distil it.

Mr. WILLIAMS said that omission would be fatal to it.

Mr. Dott was thanked for his paper.

THE GELATINISATION OF TINCTURE OF KINO.

By Mr. T. H. Bamford.

THIS paper was read by Professor Attfield. The author, having commented on the inconvenience frequently experienced from the gelatinisation to which tincture of kino is subject, narrated that a supply received by him from a wholesale house in Liverpool nearly 20 years ago, had kept in a fluid condition ever since. It had been always kept in a large quart shop bottle on the lower shelf, and the writer suggested that the daily agitation which occurred in dusting

* *American Journal of Pharmacy*. February, 1879. By Dr. W. H. Greene.

† *Chemical Society's Journal* [2], vi. 74.

might explain the absence of any tendency to gelatinisation.

Mr. UMNEY opened the discussion by alluding to the fact that on several previous occasions this subject had not only been written upon, but freely discussed, and he could but express his surprise in the first instance that the various experimenters should have overlooked the fact that there was at least three distinct kinds of kino; two of which were frequently to be met with in commerce, and the third occasionally. Speaking from memory, he thought it would be found that Hanbury in his Pharmacographia described the official kino as the product of *Pterocarpus marsupium*, which was easily distinguished by those accustomed to visit the drug warehouses and brokers' sample-rooms of the London drug market, by its tingeing the saliva, when chewed, blood red. There was then another kind of kino occasionally met with, the product of *Pterocarpus erinaceus*; and, finally, one more frequently met with, the product of *Eucalyptus* (probably *Eucalyptus resinifera*), from Australia, which was known as Botany Bay kino. Mr. Umney thought if operators would confine themselves to the official kino, the mystery would soon be solved.

Mr. MACKENZIE had no faith whatever in the baking process.

Mr. MARTINDALE thought much depended upon the age of the kino as to whether it was astringent or not.

Mr. COTTRELL thought the fluidity of this specimen of tincture of kino might rather be due to the inferiority of the gum, though he hardly ventured to hint that any samples sent out by London houses were not perfectly pure. For his part he had found the addition of a little glycerine, as had been suggested by Mr. Ellinor, kept the tincture quite fluid, and if that was departing from the instructions of the Pharmacopœia he did not care.

Mr. WILLIAMS hoped the Conference would remember that the tincture in question had been obtained from a Liverpool house.

Mr. LONG advocated the knocking out of old remedies as new ones were introduced, as it was difficult to keep so many preparations in a proper state where there was not a large practice.

Mr. HASSELSBY said he had only seen kino gelatinise once in 25 years.

Mr. GREENISH remarked that the same difficulties they had to contend with presented themselves 40 years ago; and he hoped the subject would be taken up by some who were capable of ascertaining whether gelatinisation depended upon the kind or the age of the kino.

Mr. CHIPPERFIELD had never known a tincture of kino that had not gelatinised sooner or later.

Mr. ABRAHAM said he had kept kino for 15 years, and had never known it gelatinise. He thought the writer of a paper, before suggesting remedies, should have been quite sure that what he had was really tincture of kino.

Mr. PRESTON had known tincture of kino gelatinise once in 17 years, and that he believed arose from a defective stopper.

Mr. ROBBINS remembered to have had the tincture gelatinise once, and in that case the bottle had been kept in a part of the shop where it was not often touched.

Mr. SAVAGE also had known a carefully-kept bottle of tincture gelatinise, and the bottle that had been exposed to the light and dusted every day had not gelatinised.

Mr. ELLINOR stated that the tincture made from the kino obtained from some houses would gelatinise, the tincture made from that sent out by others would not. The kino which tinged the saliva was the best, and he had never known it gelatinise. A little glycerine would keep the tincture in a fluid condition, but he did not now adopt that method.

Dr. SYMES had only known the tincture gelatinise once, and he believed the remedy lay not in the keeping, but in the preparation.

Mr. LEE stated that he had known the tincture keep for years in a good condition when exposed to a strong light and frequently removed.

The PRESIDENT, in concluding the discussion, expressed the belief that the remedy lay in the selection of materials of which the tincture was composed. He believed the Conference would thank the author of the paper for having suggested a good discussion, but he would hint that he might work out the subject more thoroughly.

ANHYDROUS AIR AS A THERAPEUTIC AGENT.

By George Alexander Keyworth, F.C.S., Hastings.

THE author said that some time since his attention was drawn to the pain caused by tension in various morbid conditions. It occurred to him that air artificially dried and heated, and so made an energetic absorbent of moisture, would give relief by causing shrinking of the parts. This he found to be the case when he experimented upon a cancerous growth affecting the hand, with moist fetid surface. The jet was applied for an hour in the evening, and caused cessation of pain for some eight hours, ensuring a good night's rest. After the application the surface presented a dried, shrivelled appearance. The loss of pain and stiffness was well marked and repeatedly verified. Anhydrous air as a mechanical anodyne may therefore prove a useful addition to the therapeutic armoury. The medical practi-

tioner may see fit to apply it to gouty and oedematous swellings, to inflamed surfaces, to indolent ulcers, and intractable wounds, with a view to promote healing by desiccation, and to various tumours and cancerous growths, to relieve the pain, and, if possible, check their increase.

His apparatus consists of an eprouvette of glass, containing fragments of calcic chloride, through which large volumes of air are driven by means of a foot bellows of the Fletcher type. The exit end of the eprouvette is connected by indiarubber tubing with an iron tube 3 feet in length, with a diameter of $\frac{1}{2}$ inch, having a spirit lamp burning beneath the centre, and a piece of indiarubber tubing attached to the extremity for the purpose of applying the current. In this manner a stream of dried air heated to 100° F. can be maintained. A plug of cotton wool inserted within the entrance tube to the eprouvette acts as a filter when the jet is applied to unsoaked skin. The air may, if desirable, be impregnated with carbolic acid or other volatile substance by introducing a portion with the wool. Large volumes of air must be used, and for a considerable time—sometimes several hours—in order to produce sensible effects.

An economical form of the apparatus may be obtained from Messrs. Maw and others.

If the process should be found useful in medical practice, dispensing chemists will probably be called upon to supply the apparatus on hire. If used in hospitals on a large scale, a small gas-engine or hydraulic motor could be adjusted in order to drive large bellows or a fan wheel, the eprouvette being of increased dimensions and the spirit lamp replaced by a Bunsen flame. The addition of indiarubber gas bags and pressure-boards can be made if increased force to the jet is required.

It may be remembered that warm dry air has long been observed to promote, and cold air to retard, the healing of wounds. Anhydrous air, though not a caustic in the usual sense, shares with such substances a certain power of disinfection, by its affinity for moisture. The Michel process introduced in Paris for removing tumours consisted in the application of a paste of asbestos and sulphuric acid, the latter effecting destruction by absorbing moisture. Caustic potash, soda, and lime act in the same manner. The effect of nitric acid is due partly to this and to its power of oxidation. Anhydrous air is, however, free from the dangers and objections which attach to the use of these energetic chemical agents.

No discussion followed this paper.

SAPONINE FROM THE BARK OF "QUILLAIA SAPONARIA."

By Mr. H. Collier.

THE *Quillaia saponaria* is a large tree growing in Chili and other parts of South America. The bark, called "quillaia" or soap bark, is very rich in a vegetable soap-principle termed saponine; and on this account it is used by the Chilians for washing clothes, wool, and other purposes. The bark, as found in commerce, is in heavy, flat, or slightly curved pieces, from which the greater part of the outer bark has been removed. A tincture made from this is of a deep orange colour. If, however, the whole of the outer layer be taken off, the tincture is pale yellow. The bark is friable if dry; the dust which arises during powdering is very irritating. Examined by the microscope, the bark is seen to be covered with crystals of oxalate of calcium. There are also brown, resinoid-looking bodies, which are probably impure saponine. The ash consists chiefly of calcium carbonate.

Saponine has been the object of numerous investigations, but most discordant results have been published respecting it. One method of obtaining saponine from quillaia bark is to boil the watery extract with rectified spirit, and filter at the boiling heat, when the saponine deposits on cooling. It is difficult to obtain it perfectly pure by this process, and the method of Le Bœuf is a more satisfactory one. This consists in boiling the bark with rectified spirit, filtering, and allowing the saponine to deposit upon cooling. It is then purified by treatment with alcohol and ether. Saponine thus prepared is a white, friable, amorphous mass, which upon ignition left 4.3 per cent. of ash, consisting of calcium carbonate. This saponine was not pure; the filter upon

which it had dried was marked with a greasy stain, and some portions of the saponine were brown. Three different samples of bark were examined, and the saponine in each case contained an ash of calcium carbonate, the amounts being respectively 3.979, 3.904, and 3.843 per cent.

Various methods, such as treatment with baryta water, acetate of lead, and oxalic acid, were tried, in order to obtain saponine free from calcium; but the results were not satisfactory.

An examination of the residue from the evaporation of the tincture showed that there were present besides saponine, an oily matter soluble in ether, and a colouring substance soluble in alcohol. It was found that simple digestion in alcohol and ether did not entirely purify the saponine; but that, if it were dissolved by boiling in rectified spirit and deposited upon cooling, it was much whiter. This process was repeated twice upon a sample of saponine, which then gave every evidence of being entirely free from oily and colouring matters. This, submitted to analysis, gave results corresponding to the formula $(C_8H_{22}O_7)_{10} CaO$.

TINCTURE OF QUILLAIA AS AN EMULSIFYING AGENT.

The tincture (employed in the preparation of various emulsions exhibited) was made according to the following formula, which is taken from Guy's Hospital Pharmacopoeia:—

Quillaia bark in coarse powder ..	..	..	4 oz.
Rectified spirit of wine ..	..	..	1 pint

Digest for three days and strain.

The bark, previous to powdering, is carefully freed from all outside layer, and the tincture produced is of a pale yellow colour.

Mercury shaken up with this tincture is reduced to a very fine state of division—it has very much the appearance of hyd. c. creta. This remarkable property which tincture of quillaia possesses of breaking up the particles of mercury and preventing them from uniting together renders it valuable as an emulsifying agent. Linimentum hydrargyri, which Squire says "should be a lead-coloured cream, but is curds and whey," may be made into a very satisfactory preparation according to the following formula, which consists of the same proportion of active ingredients:—

Lin. camp'h. ..	..	..	5j.
Tinct. quillaia ..	..	..	5iij.
(Liq. am. fort. 3ij. M[40 aq. ad) ..	..	..	5v.
Ung. hydrarg. ..	..	..	1 oz.

Chloroform is made into an excellent emulsion by using 3ss of tincture to chloroform mx.

For fixed oils, such as ol. ricini, ol. olivæ, ol. morrhue, 3ss of tincture emulsifies perfectly 3ss of oil with 3ss of water.

Ext. filicis liquid. 5j may be made into a mixture with 3ss of tincture. Ol. terebinth and copaiba form very good emulsions with an equal bulk. Resinous tinctures require a larger amount of tincture to prevent separation of resin. The following formula gives a very perfect mixture, and it is about the same strength as mist. guaiaci, B.P.

Resin guaiaci ..	..	..	gr. xij.
Tinct. quillaia ..	..	..	5j.
Aq. destil. ad ..	..	..	5j.

Dissolve the guaiacum in the tincture, filter, and then mix with the water.

Resin of copaiba with tincture of quillaia is not a satisfactory preparation—the liquid is not thick enough to prevent the too rapid separation of the resin. The same remark applies to balsam of Peru.

Mr. BENDER asked if the taste of the tincture was not sometimes objectionable?

Mr. REYNOLDS extended the question, and asked as to the use of the tincture both internally and externally.

Mr. GREENISH said he had found tincture of quillaia exceedingly useful in many instances.

Mr. MASON wished to know if the frothy power was due to the presence of saponine, and whether the saponine obtained from other sources had a similar frothy power.

Mr. LEE asked what temperature should be used, and what strength of spirits would be required to extract the saponine.

Mr. UMNEY remarked that to his knowledge this bark would be found to be a very powerful irritant to any operator who desired to powder it; also that it was a most valuable stimulating drug when applied externally. It was an ingredient in at least one widely-known patent medicine which for years had had a considerable sale. He was confident that they would be acting most unadvisedly in recommending a tincture or a fluid extract of this bark to be used as an emulsifying agent until they were fully persuaded that its action when internally administered was of a harmless nature.

Mr. SQUIRES asked if the quillaia in its purer form was free from objectionable taste, observing that in tooth-powders it was rather objectionable.

Mr. FLETCHER asked if Mr. Collier had reason to suppose that the saponifying power was confined to the lime salt, or whether if the calcium was replaced by another base, the saponine would still retain its characteristic property.

Mr. HASSELY considered that the property which the quillaia had been found to possess of breaking up mercury might be utilised in the preparation of sheep-ointment.

Mr. COLLIER thought there could not be any harm in quillaia bark, as it had been recommended by the Paris Society of Medicine, and said the tincture of quillaia mixed with cinnamon in cod-liver oil made it a very palatable mixture. He confirmed the opinion that its power of breaking up mercury would be useful in the manufacture of sheep-ointment.

Mr. Collier was then thanked for his paper.

NOTE ON ARICINE.

By John Eliot Howard, F.R.S.

THE author adverted to the discovery of aricine by Pelletier in 1829 in a peculiar bark, that of *C. Pelletierana*. From the same bark Mr. Howard also obtained the same product, and deposited a specimen of aricine, together with the bark from which it was derived, in the museum of the Pharmaceutical Society in December, 1852. Dr. Hesse having recently presented a specimen of aricine to the Museum, this is found to be identical with that of Mr. Howard. Dr. Hesse has also elucidated the subject of the kindred alkaloids.

Mr. Howard thinks that aricine has not been obtained in a crystalline state from any other bark, and that the substance in the red bark, about which some controversy arose, was paricine, and not aricine.

The attention of the medical profession is solicited to the effects of the derived products of the *C. succirubra*, as now largely used in the East Indies for the cure of fever, and also as having obtained celebrity in a "fluid extract." The chemical composition of this bark (that of *C. succirubra*), differing both as to the alkaloids and the other material from that of calisaya, or of "pale" or "yellow" bark, must, it is presumed, lead to varying results in medical treatment.

Mr. Howard also directs attention to the botanical classification of the cinchona barks in connection with different groups of barks, containing a preponderance of different alkaloids:—Quinine in calisaya, cinchonine in *C. Peruviana* and the grey barks, cinchonidine in pale, and aricine in yellow, bark.

THE CHEMISTRY OF CHAULMOOGRA OIL.

By John Moss, F.I.C., F.C.S., London and Berlin.

THIS paper was not read in full, but in the absence of Mr. Moss, a summary of it was given by Mr. Naylor, who had assisted him in working on the subject. The author, having referred to a paper of his on this oil in THE CHEMIST AND DRUGGIST of December 15, 1878, gave the results of his subsequent investigations, which were mainly these:—Chaulmoogra oil contains two acids in the free state, viz., palmitic acid, and a new acid, called by Mr. Moss, "gynocardic acid." The same two acids are present in combination with glyceryl, as also are hypogaeic and eocenic acids. The proportion of these four acids in the oil is 81.11 per cent., and palmitic is present in by far the largest amount. The chief interest centres around the gynocardic acid now for the first time described, as having a pale yellow colour, and a melting-point of 29.5°C. The crystalline form is highly distinctive. As a little of the acid cools on a microscope slide it shoots out into crystalline plates with a thalloid fringe more or less deep. An ultimate analysis gives numbers corresponding to the formula $C_{41}H_{84}O_2$, and the body

would therefore belong to the little-known series $C_n H_{2n} - O_2$. The ammonium salt is soluble in water; the magnesium salt is insoluble, but dissolves in alcohol .807, and falls out of solution on diluting. The barium and lead salts are insoluble in water, ether, and cold alcohol. It gives the green reaction with Dymock's sulphuric acid test, and is the only constituent of the oil which so behaves. Mr. Moss finds that the reaction is not peculiar to chaulmoogra, as was supposed by Dymock, but that palm oil also gives it in a marked degree. There are doubtful traces of alkaloid in the oil, and the author suggests that its medicinal virtue may reside in gynecardic acid.

Mr. MASON suggested that it might be convenient if brief details could be given respecting the nature of chaulmoogra oil.

In reply Mr. NAYLOR said that chaulmoogra oil was obtained from a plant known as the *Gynocardia odorata*, and had been used very beneficially in cutaneous diseases. The oil had also been used very successfully in this country in cases of phthisis.

Mr. WILMOT mentioned a case of skin disease which had been treated at King's College Hospital with the chaulmoogra oil, in which it had entirely failed; and the patient herself had requested to be allowed to return to the former treatment of gurgun oil, which had proved beneficial.

Mr. BAXTER had heard chaulmoogra oil spoken of as an infallible cure for mangey itch in dogs, and would like to know if Mr. Naylor could give any information in this respect.

In reply Mr. NAYLOR said the oil was not intended to be a panacea, but it had been used very successfully in some cases; and in regard to mange in dogs, he had known it used frequently, and in his experience it had never failed.

THE CAPACITY OF DIFFERENT ORGANS TO ABSORB AND RETAIN ARSENIC IN CASES OF CHRONIC POISONING.

By N. P. Hamberg, M.D., H.M.P.S.

PROFESSOR ATTFIELD read this paper in the absence of the writer.

For the purpose of investigation a dog weighing 9,775 grammes was poisoned by means of 1.2 gramme arsenious acid, administered in severe portions from February 22 to March 12, 1878.

By post-mortem examination the most noteworthy observations were:—

The body very emaciated, weighing only 5,525 grammes.

The organs of the abdomen in a high state of congestion.

The stomach contained no food, the epithelium of the mucous membrane on some parts removed, with two superficial ulcerations.

The intestines much injected, contained only blood-streaked mucous and altered blood.

The liver charged with blood, dark coloured, with small bright spots of commenced fatty degeneration.

The blood dark coloured and coagulated. *The blood-vessels* at the base of the brain highly congested.

The following portions of the body were investigated:—Brain, spinal marrow, heart, with lungs and some blood, stomach and intestines, liver, kidneys, muscles, bones, bladder, with urine.

Analysis was conducted in the following manner:—The object was treated with chlorate of potash and hydrochloric acid, the filtrate impregnated with sulphuretted hydrogen, the precipitate fused with nitrate and carbonate of soda, the fused mass dissolved in water, the solution supersaturated with nitric acid, a large quantity of ammonia added, and the arsenic precipitated with magnesium chloride mixture as arseniate of magnesium and ammonium; the dry precipitate was calculated as arsenious acid.

During time of experiment urine and solid excrements collected, the 26th and 28th of February, were investigated.

REVIEW OF THE RESULTS.

A. Analyses during Time of Experiment.

February 26.—The urine, as well as the solid excrements, contained only traces of arsenic.

February 28.—1 litre of urine contained 0.002 gramme arsenious acid; 1 kilogramme solid excrements contained 0.0286 gramme arsenious acid.

B. Analyses of Portions of the Dead Body.

	Grammes of arsenious acid contained
1. One litre urine.. ..	0.02084
2. One kilo. liver	0.01363
3. " kidneys	0.01307
4. " spinal marrow	0.00459
5. " muscles	0.00355
6. " brain	0.00398
7. " bones, with remnants of muscles	0.00139
8. " stomach and intestines	0.00075
9. " heart, lungs, and a little blood.. ..	0.00022
	0.06112

Nine kilogrammes of portions of the body thus yielded 0.06112 gramme arsenious acid. As the dog at time of death weighed only 5,525 grammes, and as no vomiting during time of experiment was perceived, it is quite evident that the greater portion of the administered arsenious acid had been eliminated.

The foregoing results agree with the previous observations of several toxicologists in different countries.

Professor TICHBORNE said it was a paper that would possess interest to pharmaceutical chemists having appointments as public analysts.

Mr. DRAPER said the paper had no bearing on pharmacy, and he was surprised it had been introduced.

Professor ATTFIELD remarked that the paper possessed a certain chemical interest. The writer had, it was true, made reference to the different organs of the body, but it was with the object of explaining the methods adopted for the detection of the poison.

Mr. REYNOLDS reminded the Conference that the paper had been put last on the list, and therefore had excluded nothing.

The PRESIDENT also justified the course taken by the committee, and thanks were voted to the author of the paper.

A paper contributed by Professor Flückiger, on the "Estimation of Morphia in Opium," was read by Professor Attfield. It did not appear on the programme, and it was mentioned that the process described had already been published by the author, but that this was its first appearance in English. The method will be found, we believe, in Flückiger's *Pharmaceutische Chemie*, lately published. A few comments on the process were made by Messrs. Draper, Naylor, Williams, and Attfield, and the thanks of the Conference were voted to the author.

This concluded the reading of papers, and the Conference proceeded to the transaction of

GENERAL BUSINESS.

THE NEXT PLACE OF MEETING.

Mr. N. M. Grose, on behalf of the druggists of Swansea, gave to the conference a very cordial invitation to hold their sittings next year in that town. On the motion of Professor Attfield, seconded by Mr. Reynolds, the invitation was accepted.

ELECTION OF OFFICERS.

The following were elected officers for the ensuing year:—

PRESIDENT	LOCAL SECRETARY
W. Southall, F.L.S., Birmingham	J. Hughes, Swansea
VICE-PRESIDENTS	OTHER MEMBERS OF EXECUTIVE COMMITTEE
N. M. Grose, Swansea	M. Carteighe, F.C.S., London
R. Reynolds, F.C.S., Leeds	T. Greenish, F.C.S., London
W. Ward, F.C.S., Sheffield	H. W. Maleham, Sheffield
G. W. Sandford, Pres. Ph. Soc. of G.B., London	A. H. Mason, F.C.S., London
	C. Symes, Ph.D., Liverpool
	W. A. Tilden, D.Sc., F.C.S., Clifton
	C. Umney, F.C.S., London
	J. T. Williams, Swansea
	J. C. Thresh, F.C.S., Buxton
TREASURER	AUDITORS
C. Ekin, F.C.S., Bath	G. Ellinor, Sheffield
	J. Lloyd, Swansea
GENERAL SECRETARIES	
Professor Attfield, F.C.S., London	
F. Baden Benger, F.C.S., Manchester	

VOTES OF THANKS.

Mr. Williams (Swansea) moved,

That the cordial thanks of the non-resident members of the British Pharmaceutical Conference be given to the Local Committee and the other Sheffield members, and especially to Mr. H. W. Maleham, Messrs. W. Ward, G. Ellnor, E. R. Learoyd, and W. Cubley, for the very successful manner in which they have conducted the arrangements of this meeting.

Mr. Draper (Dublin) seconded the motion, and it was unanimously adopted.

Mr. Ward, Mr. Maleham, and Mr. Learoyd acknowledged the compliment.

THE VISITS TO WORKS.

Very hearty votes of thanks were passed to Messrs. John Brown & Co.; Messrs. Brown, Bayley & Dixon; Messrs. Round & Son; Messrs. J. Rodgers & Sons, and Messrs. Walker & Hall, "for having thrown open their most interesting works, and also to the managers of departments and others whose courtesy and attention so enhanced the pleasure of the visit." Several of the members spoke of the pleasure they had derived from visiting the works.

On the motion of Mr. Sumner, seconded by Mr. Radley, a vote of thanks to the President was carried by acclamation.

The President in acknowledging it, said he should leave the chair with some regret. He had the satisfaction of knowing, however, that the post would pass into the hands of a very able man, and one whose scientific attainments would very much exalt it.

PRESENTATION TO PROFESSOR ATTFIELD.

Mr. Schaecht then said he desired to call the attention of the Conference to one other matter before they separated. He was not then speaking from the presidential chair. The members of the Executive Committee were anxious to present to Professor Attfield a testimonial in acknowledgment of the valuable services he had rendered to the Conference during the 16 years it had been in existence. They would like to take the opinion of the members generally, who all knew Professor Attfield's services. It was suggested that a committee should be formed, and in order that the subscription might take as wide a range as possible the amounts would be limited to half-a-guinea each.

The Conference very heartily approved of the suggestion, and passed the necessary resolutions.

The proceedings then terminated.

Subjoined are the names of members attending the meeting.

C. Matthews (ASHEY-DE-LA-ZOUCH), W. Bostock (ASHTON-UNDER-LYNE), T. Lister (BAUNSLLEY), R. W. Silson (BRADFORD), T. Billing, M. Leigh, W. D. Savage (BRIGHTON), W. W. Stoddart, J. Pitman, J. Boucher (BRISTOL), J. C. Thresh (BUXTON), J. Holloway (CARLISLE), G. Baxter (CHESTER), W. Barton (CHELTENHAM), R. M. Hatch, F. F. Schaecht, G. F. Schacht (CLIFTON), H. A. Wetzel (DETROIT, MICH., U.S.), J. Ward (DELBY), J. T. Hasselby, M. H. Stiles, C. T. Scaife (DONCASTER), E. Taylor (DROPTWICH), J. G. Brunker, H. N. Draper, W. and Mrs. Hayes, C. R. C. Tieborne (DUBLIN), D. B. Dott, W. I. Macadam, J. Mackenzie, F. Stephenson (EDINBURGH), W. Ramsden (FALLOWFIELD), E. C. C. Stanford (GLASGOW), H. Meadows (GLOUCESTER), D. Williamson (GUILDFORD), R. H. Davies (HARROGATE), H. Kaye, G. W. Rhodes, G. Jarman (HUDDERSFIELD), C. B. Bell, J. Oldham (HULL), W. Sterling (KILKENNY), H. Bennett (KINGSTOWN), P. Jefferson, R. Reynolds, W. Smeaton, E. Yewdall, (LEEDS), J. W. Clark, A. de St. Dolmas, J. Meadows (LEICESTER), T. F. Abraham, T. Hall, T. S. M. Hall, A. H. Mason, J. Shaw, R. Sumner, C. Symes (LIVERPOOL), Professor Attfield, W. R. Barker, J. Bletsoe, J. Bourdas, jun., S. M. Burroughes, M. Carteighe, H. Collier, C. Cracknell, E. Crawshaw, J. Dodwell, F. W. Fletcher, W. Foster, T. Greenish, W. Hills, W. L. Howie, A. B. Lewington, H. Long, A. P. Luff, W. Martindale, W. B. Mason, J. H. Matthews, W. A. H. Naylor, F. Passmore, B. H. Paul, A. P. Penrose, S. Plowman, J. Robbins, R. A. Robinson, W. P. Robinson, R. Rowe, G. W. Sandford, J. F. Savory, A. Senior, A. E. Tanner, C. Umney, W. Warren, J. Williams, W. Willmott, A. C. Wootton (LONDON), H. D. Simpson (LOUTH), F. B. Benger, B. Robinson, L. Siebold, W. Wilkinson (MANCHESTER), R. F. Young (NEW BARNET), W. J. Mayger (NORTHAMPTON), W. Williams (PRESTON), J. W. Bamford (ROCHDALE), Messrs. A. H. Allen, F. Barber, R. Bennett, G. H. Bradford, J. Carr, T. Cocker, G. A. Cubley, J. T. Dobb, G. Ellnor, A. R. Fox, H. Hall, J. P. Hewitt, H. Hindle, J. Y. Hodge, W. Jarvis, W. Johnstone, E. R. Learoyd, H. W. Maleham, G. T. W. Newsholme, J. Ottly, J. Preston, J. Turner, W.

Ward, J. Watts, E. W. Wills (SHEFFIELD), G. Cottrill (SHEPTON MALLEY), R. Chipperfield (SOUTHAMPTON), W. V. Radley (SOUTHPORT), N. M. Grove, W. Morgan (SWANSEA), H. Hearder, W. Hearder (TORQUAY), J. Atkinson (TYNEMOUTH), J. L. Chaplin (WAKEFIELD), A. Hick (WATH-ON-DEARNE), J. Phillips (WIGAN), G. W. Jones (WORKSOP), T. C. Maggs (YEovil), J. Clark, R. C. Dresser, W. T. Hey, J. F. Walker (YORK).

FORMULÆ OF SECRET MEDICINES.

The Formulæ given below are translated (by special permission of the author) from a German collection compiled by Mr. Edward Hahn, Apotheker. The names following most of the Formulæ are those of the authorities quoted for the analysis. The weights are almost invariably given in metric denominations. A gramme is equivalent to 15½ grains. The prices quoted are the nearest English equivalents to the original retail price.

SCHWEDISCHE LEBENSESSENZ—SWEDISH ESSENCE OF LIFE (Inserate-Comptoir, 9 Neumarkt, Leipsic). It is ordinary lebenselixir, elixir ad longam vitam. 30 grammes, 3s.—Hager.

TREFFENSCHNEIDT'S LEBENSESSENZ resembles the ordinary elixir ad longam vitam, somewhat diluted.—Hager.

WEISSE LEBENSESSENZ—WHITE ESSENCE OF LIFE (Apotheker Julius Schrader, Wunderkingen on the Danube). Spirit, distilled over balm and peppermint herbs, and cloves, mixed with 6 per cent. of sugar, and just sufficient tincture of quassia to give it a faintly bitter taste. The spirit contains 35 per cent. of alcohol. A bottle holding about 50 grammes, 1s.—Hager.

LEBENS MAGNETISCHE-ESSENZ—MAGNETIC LIFE ESSENCE (Behr).—For difficulty of hearing and congenital deafness. Water, containing a little nitric acid, in which a trace of copper is dissolved. A piece of copper wire is fixed in the stopper and reaches to the bottom of the fluid. On the free end a piece of zinc plate is fixed. One bottle, 3s.—L. F. Bley.

AROMATISCHES LEBENSALZ—AROMATIC LIFE SALT (Gehrig & Grunzig, Berlin).—An impure sodium bicarbonate, or a mixture of sodium bicarbonate, 150 parts; common salt, 6 parts; and Glauber's salt, 4 parts; with a second mixture of sugar and sodium bicarbonate, of each 10 parts; intimately mixed with an aromatic tincture, dried, and powdered. The tincture is made of Florentine orris, 5 parts; cinnamon, orange-peel, and cardamoms, of each 1 part; with spirit of wine, about 10 parts. 500 grammes, 1s.—Hager.

ANDERSEN'S LEBENS SCHMIERE, MAGNETISCHE ÖLESSENZ—ANDERSEN'S LIFE SALVE, MAGNETIC ESSENCE OF OILS (Egelkraut, Berlin).—Poppy oil, 55 grammes; thyme oil, a few drops; camphor, a trace. 1s. 6d.—Hager.

LEBENSWECKER—LIFE-ROUSER (C. Baunscheidt, Bonn).—A cure for all diseases. It is a cylinder of wood, in which a certain number of fine needles are fixed. With these the skin must be pricked, and a number of little wounds produced; and a fatty oil, which is provided, is to be rubbed into these wounds. The oil is made by digesting euphorbium, 1 part; mezercon bark, 3 parts; spirit, 1 part; in olive oil, 20 parts. Or, from euphorbium, 5 parts; cantharides, 3 parts; and olive oil, 1 parts.—Hager; Wittstein.

LEBERLEIDEN UND WASSERSUCHT—LIVER DISEASES AND DROPSY (Dr. von Nees', Altona, new method of treatment).—A tea of dog-rose seeds, 24 parts; valerian root, 40 parts; peppermint, 8 parts; knot-grass, 55 parts.—Mirus.

BASCHIN'SCHER LEBER-THRAN—BASCHIN'S COD-LIVER OIL.—Light cod-liver oil, 100 parts, shaken in a stoppered flask, with caustic soda solution (sp. gr. 1.3), 2 parts. Leave in a cool place for one or two weeks, then filter. It will then contain no iodine, and no free fatty acids. The oil recently purchased from Baschin is simply pure steam-pressed cod-liver oil.—Hager.

LEBER-THRAN-GELÉE, CRÈME D'HUILE DE FOIE, VON LE ROY—LE ROY'S COD-LIVER OIL CREAM OR JELLY.—Cod-liver oil, 160 parts; sugar, 150 parts; and albumen, 200 parts, made into an emulsion and stiffened with gelatine.

GEZUCKERTER LEBERTHRAN—SWEETENED COD-LIVER OIL (Thière, Paris).—Cod-liver oil in the very finest state of division, and of agreeable taste. Nothing but powdered milk sugar. 60 grammes, 3s.—*Attfield*.

JOUNGHSCHER LEBERTHRAN—DE JONGH'S [?] COD-LIVER OIL.—Good cod-liver oil, to which is added a little iodine.

OZONISIRTER LEBERTHRAN—OZONISED COD-LIVER OIL.—Is pale steam-pressed cod-liver oil.—*Hager*.

WEISSER LEBERTHRAN—WHITE COD-LIVER OIL.—Is the oil of sea mammals.—*Hager*.

WEISSER FLÜSSIGER LEIM, COLLE BLANCHE—WHITE LIQUID GLUE ("from Paris," but really made in Germany).—Mostly strong mucilage of gum arabic. 30 grammes, 6d.—*Hager*.

VEGETABILISCHES LEIMPULVER—VEGETABLE GLUE POWDER (M. Hochstetter, Lange).—A bad grade of potato starch. 50 kilos., 25fl.—*J. Geisse*.

LENTICULOSA—A COSMETIC (Hutter & Co., Berlin).—A filtered solution of sugar or honey, 4 parts; pearl ash, 3 parts; in orange-flower water, 50 parts; and spirit of wine, 4 parts. 100 grammes, 3s.—*Hager*.

LIFE FOR THE HAIR (S. A. Chevalier, M.D., New York).—A turbid solution of sugar of lead, 3 parts in 1,000.—*Chandler*.

CHEVALIER'S LIFE FOR THE HAIR—A HAIR DYE.—Water, 200 grammes; glycerine, 100 grammes; milk of sulphur, 15 grammes; lead sulphide, 8 grammes; iron sulphide, 1 gramme, perfumed with the oils of rosmarin and geranium.—*Piper*.

LILIONESE. A well-known cosmetic.—A weak spirituous solution of potassium carbonate, perfumed with ethereal oils or eau de Cologne. A bottle, 2s. 6d.—*Hager*.

LILY WHITE AND ROSE BLOOM (Lavel's).—Calcium carbonate with talc.—*Chandler*.

SUPERIOR LILY WHITE.—Calcium carbonate with a little magnesium carbonate.—*Chandler*.

LIMPIDUM-PULVER—LIMPID POWDER (Perry, England).—For improving ink. Ordinary green vitriol, ground.—*Stickel*.

LINIMENT DER ENGLÄNDER—ENGLISHMEN'S LINIMENT.—Strongest ammonia, 3; chloroform, 2; camphor, 3; tincture of opium, 1; spirit, 12 parts.—*Mayet*.

LIQUEUR BERNHARD is a liquid for removing spots and stains. It consists of ox gall, 10; potash, 5; water, 100 parts, with a little spirit.—*Hager*.

LIQUEUR DE Goudron Concentrée de Guyot—GUYOT'S CONCENTRATED SOLUTION OF TAR.—Made by macerating wood tar, 25 parts, with sodium bicarbonate, 22 parts, and water, 1,000 parts.—*Jeannel*.

LITHICIUM-EXTRACT.—A fluid, placed on the market by André Stahl, Cologne, and to be used for the most different purposes. It consists, according to a communication from Bartl, of the Hanover Engineers' Association, of 22.90 per cent. caustic soda, 3.35 per cent. sodium chloride, and 20 per cent. sodium sulphate, with traces of ferric oxide and alumina, dissolved in distilled water. It is, therefore, nothing more than concentrated solution of common caustic soda, to be had in the solid form in any drug market at 7½d. a kilogramme, and the maximum value of the extract is 3½d. a litre. Stahl sells it at 4s. a quart, exclusive of packing.—*Bartl (Hager)*.

LITHOREACTIF (Weiss, Basle).—For fur in kettles. Beet-sugar syrup, 5 parts; milk of lime (lime 1, water 3, soda lye, sp. gr. 1.3, 80 parts), 15 parts.

LITON (Chemiker Horn).—Infallible cure for toothache. Lithium phosphate, .05 gramme; dissolved in brandy, 4 grammes. 1s. 5d.—*Hildwein*.

LOOCH SOLIDE (Gallot).—A tablet made of blanched sweet almonds, 100 parts; bitter almonds, 12½ parts; gum arabic and sugar, of each, 200 parts; orange-flower water, 15 parts.

LÖWENZAHN-EXTRACT—Dandelion Extract—(Petrykowski, Berlin).—Taken in stoppages in the intestines, liver, spleen, &c. Syrup of potato starch, 100 parts; honey, 50 parts; liquorice juice, 2 parts; nitre, 3 parts; sal-ammoniac, 2 parts. 125 grammes, 1s.—*Hager*.

LOHEKUR—TAN CURE (Dittmann, Charlottenburg).—It consists in baths of tan-bark, and doses of Dittmann's Kraftpulver, given on page 321.

LUCIEN-WASCHWASSER—LUCIEN LOTION (Wilhelm, Neunkirchen, and Bittner, Gloggnitz).—For preserving the beauty of the skin and complexion. Borax, .5 gramme; glycerine, 4 grammes; distilled water, 70 grammes; perfumed with traces of neroli and petit grain. 2s.—*Dr. Horn*.

LUFTSALZ—AIR-SALT; or PHILOSOPHISCHES GOLDSALZ—PHILOSOPHICAL GOLD SALT (Baron Hirsch).—Bisulphate of potash.

LUFTWASSER—AIR-WATER (Apotheker Fürst, Prague).—For all possible bodily ills. A solution of Epsom salts, 1 part; in hard spring water, 11½ parts. 400 grammes, 9d.—*Wittstein*.

ALLEN LUNGENLEIDENDEN.—"To all sufferers from lung diseases. When physicians are in vain, and the disease is accompanied by fever, cough, with spitting of blood, stitch in the side, certain relief may be had from R. Selle, 82 and 83 Dresdenerstrasse, third floor, from nine to six."

For 6s. 9d. we receive by return of post a letter, accompanied by two bottles filled with a yellowish-brown fluid. The directions for use are on a half-sheet of paper, in 10 paragraphs, and are evidently the work of a very uneducated man.

The smaller bottle, which is to be used first, contains 30 grammes of a bitter fluid, which consists of a concentrated infusion of rhubarb, gentian, and the ingredients of the Elixir of Long Life. It contains also 5 grammes spirit and 5.5 uncrystallised sugar and muciilage. Traces of malic and acetic acid show that the infusion is made with elder. The other bottle contains 123 grammes of a fluid with nearly the same colour and composition as the foregoing. It contains, however, one-third only of the rhubarb and a little more spirit.—*Hager*.

LUNGENSCHWINDSUCHT.—R. Strang, of Friedrichsrode, in Thuringia, announces himself as physician for pulmonary consumption. Treatment gratis; only the consultant is required to leave a fixed sum to pay the expenses of advertising, &c. The inquirer, after reimbursing 3s., is told to use dog's fat.

LUNGENSCHWINDSUCHT.—"Consumption cured naturally (on receipt of 6s.), without the use of internal remedies. Address, W., 25 Poste Restante, Heidelberg, Baden."

Two recipes:—1. The external application (to be rubbed on the chest): 60 grammes of stinking animal oil. 2. In violent cough, take thrice daily a teaspoonful of a mixture of almond oil, 22.5 grammes; laudanum, 3.75 grammes; lemon juice, 9.5 grammes; syrup of poppies, 22.5 grammes.—*Hager*.

LUNGENSEUCHE DER RINDER—LUNG DISEASE OF CATTLE.—(The remedy of a parson's wife, Baden).—A clear, colourless, tasteless fluid—spring water in fact. A seltzer-water bottle, 4s.—*Hager*.

LUTECIN, OR PARIS ALLOY.—A name given by Le Mat Picard & Bloch to an alloy, patented in France, of copper, 80 parts; nickel, 16 parts; tin, 2 parts; cobalt, 1 part; iron, ½ part; zinc, ½ part.—*Deutsche Indust. Zeitung*.

MÄUSEGIFT—MOUSE POISON (Franz Träger, Hardheim).—Advertised as new, safe, and harmless. Two packets; one containing coarsely-powdered cayenne, the other powdered white arsenic. The directions for use do not indicate in the least that the powder is very poisonous.—*Apotheker R. R. in B.*

MAUSEMITTEL.—Rye-meal coloured reddish with log-wood. 100 grammes, 4s. 3d.—*Reinsch*.

FRENCH TRADE IN CHEMICALS.

THE value of the imports of chemical products into France has greatly increased in the last ten years, while that of the exports has declined.

The following shows the value in sterling:—

		Imports £		Exports £
1868	.. ..	858,440	.. ..	2,058,240
1877	.. ..	1,805,000	.. ..	1,865,440

The imports and exports of coal-tar colours, which only date from 1875, have not varied much; the imports in 1877 were to the value of 173,880*l.*, and the exports to 106,760*l.* The imports of crude petroleum are to the value of 948,000*l.*, and of refined spirit about 296,200*l.* The exports are small.

The following shows the value of the chemical products imported and exported by all the frontiers of France from 1868 to 1877, in francs:—

		Imports Francs		Exports Francs
1868	.. ..	21,461,000	.. ..	51,456,000
1869	.. ..	23,101,000	.. ..	43,904,000
1870	.. ..	24,246,000	.. ..	28,623,000
1871	.. ..	27,490,000	.. ..	28,715,000
1872	.. ..	42,713,000	.. ..	41,774,000
1873	.. ..	41,427,000	.. ..	42,665,000
1874	.. ..	37,524,000	.. ..	44,215,000
1875	.. ..	44,198,000	.. ..	42,570,000
1876	.. ..	44,764,000	.. ..	44,662,000
1877	.. ..	45,123,000	.. ..	46,636,000

Coal-tar Colours.

		Imports Francs		Exports Francs
1875	.. ..	4,217,000	.. ..	2,296,000
1876	.. ..	4,778,000	.. ..	2,279,000
1877	.. ..	4,947,000	.. ..	2,669,000

Rare Petroleum.

		Imports. Francs.		Exports. Francs.
1868	.. ..	6,720,000	.. ..	43,000
1869	.. ..	6,722,000	.. ..	27,000
1870	.. ..	7,242,000	.. ..	43,000
1871	.. ..	4,114,000	.. ..	145,000
1872	.. ..	19,000,000	.. ..	5,000
1873	.. ..	12,000,000	.. ..	15,600
1874	.. ..	9,000,000	.. ..	8,000
1875	.. ..	9,000,000	.. ..	3,600
1876	.. ..	19,000,000	.. ..	15,700
1877	.. ..	23,700,000	.. ..	29,000

Refined Petroleum.

		Imports. Francs.		Exports. Francs.
1868	.. ..	4,042,000	.. ..	528,000
1869	.. ..	6,965,000	.. ..	355,000
1870	.. ..	8,100,000	.. ..	336,000
1871	.. ..	12,352,000	.. ..	300,000
1872	.. ..	2,777,000	.. ..	177,000
1873	.. ..	2,220,000	.. ..	69,000
1874	.. ..	1,840,000	.. ..	72,000
1875	.. ..	1,027,000	.. ..	108,000
1876	.. ..	1,718,000	.. ..	40,000
1877	.. ..	3,655,000	.. ..	96,000

There was also an average import of essence of petroleum, to the value of 3,000,000*l.* to 4,000,000*l.* annually.

ABSTRACTS OF SPECIFICATIONS.

For permission to print the following we are indebted to the courtesy of the *Engineer*:—

4807. Manure, A. De Podewils.—Dated November 26, 1878.—(Complete.) 10*d.*

This invention is based on the fact that smoke from ordinary fuel, such as wood, coal, &c., furnishes the most efficacious and economical means of disinfecting all solid and liquid refuse or ordure, and of evaporating the water contained in faeces without causing any smell.

4804. Manure, I. Brown.—Dated November 26, 1878. 4*d.*

This consists in the employment as a manure of sulphuric acid in a solid form by the mixture or combination with gypsum or other salts or

media of sulphuric acid, or of a further proportion of sulphuric acid, so as to form a product designated a superphosphate.

4768. Dentifrice, BOXES FOR, &c., J. H. Johnson.—Dated November 23, 1878.—(A communication.) 6*d.*

Inside the box a shelf or lid fits on to a ledge or rim below the ordinary lid, so that when the box is reversed a portion of the contents passes to the upper part of the box, and upon the box being placed upright again falls upon the shelf. The lid is then removed, and such portion of the contents of the box can be taken up by a tooth-brush without touching the remaining portion.

4796. Oil OR LUBRICANT, R. Cockshott.—Dated November 25, 1878. 2*d.*

To one gallon of water is added about 3 oz. of Irish moss and 2 oz. New-castle soda; this mixture is boiled; down and left to cool. When cool one-third of a gallon of Gallipoli oil and a suitable quantity of indigo blue are added and thoroughly stirred.

5265. Insect Powder, J. C. W. Stanley.—Dated December 24, 1878. 4*d.*

This consists of a poisonous powder containing arsenite or arseniate of lime, prepared from the purple residuum or bye-product obtained from the manufacture of magenta or other dyes in aniline dye works, for the destruction of insects.

5090. Insecticide for Animals and Plants, J. Wilson.—Dated December 12, 1878. 4*d.*

Fifty lbs. of brown grease and 25 lbs. of resin are dissolved, and 50 lbs. of soda ash and 25 lbs. of borax added thereto, the whole being gently boiled and continually stirred; 25 lbs. of No. 5 carbolic acid is then boiled with it, and 25 lbs. of liquor calcis sulphidi added, and again boiled. About 80 lbs. extract of tobacco are mixed with it, thus forming a sulphoglycerole earbolate of nicotine, which is soluble in water and destructive to all parasites.

4924. Snuff, W. Handysides.—Dated December 3, 1878. 2*d.*

The following ingredients are ground together in a mill: Soda, 1,000 parts; cloves, 10 parts; cinnamon, 5 parts; white hellebore, 2 parts; ammonia, 2 parts.

5055. Waterproof Harness and Leather Polish, T. Nellis.—Dated December 10, 1878.—(Not proceeded with.) 2*d.*

The varnish consists of 2 lbs. gum shellac dissolved in one gallon of methylated spirits, with 6 oz. gum camphor well stirred; then is mixed therewith 4 oz. of lamp-black and again stirred, and 2 oz. of Prussian blue finely powdered added thereto.

4352. Luminous Effects, PRODUCING, J. N. Aronson.—Dated November 28, 1878. 4*d.*

The phosphorescent substance or substances preferred are such as calcined oyster shells combined with sulphur by exposure to sufficient heat, or a paste formed of neutral arseniate of baryta and gum tragacanth or sulphide of strontia, or sulphide of barium in combination with a small percentage of magnesia. For rendering walls or surfaces for advertising or other purposes luminous in the dark, they are coated with an adhesive substance. The phosphorescent substance is then spread over the surface by any suitable means, and then coated with transparent varnish or other transparent substance.

5255. Phosphorescent Powders, &c., W. Morgan Brown.—Dated December 7, 1878.—(A communication.)—(Complete.) 6*d.*

The object is to obtain and utilise at night time the light absorbed during the day time from sunlight or an artificial light, either by employing these powders after exposure, or by augmenting their brilliancy by means of electricity. The powders are made by taking 100 parts by weight carbonate of lime, and phosphate of lime produced by the calcination of sea shells; secondly, 100 parts of lime rendered chemically pure by calcination, and after the above are mixed, 25 parts of calcined sea salt are added, then 25 to 50 per cent. of the whole mass of sulphur incorporated therewith by sublimation, 3 to 7 per cent. of colouring matter in a powdered form composed of mono-sulphuret of calcium, barium, strontium, uranium, magnesium, aluminium, or other minerals or substances, producing the same appearances, *i.e.*, which become luminous in the dark.

BRUMATALEIM.—BRUMATA GLUE.—According to the Protokol of the Polytechnische Verein, Brumataleim is only terebinthina Veneta with a little unguentum ol. lauri. Ordinary fly-glue would answer the purpose better. According to Professor Nessler, of Carlsruhe, the following is the formula of Brumataleim:—A pound of white resin is melted with a pound of rape or some other non-drying oil, and allowed to cool. A better preparation seems to be obtained when, in place of half the oil (50 parts), 35 parts of lard and 33 parts of oil are taken. Brumataleim costs 2*s.* a pound. By this formula it can be made for 6*d.* or 7*d.*—*Pharm. Zeit.*

CONSTIPATION.

LAST month we considered the subject most fitted for consideration during those autumnal months when diarrhoea is apt to be epidemic. It is not unnatural that the opposite condition should now be considered, for although its effects are not so immediately obvious, or attended with so much pain and distress, yet constipation is a state fraught with dangers, and quite as troublesome to treat in many instances as its opposite.

By constipation is meant an insufficient action of the bowels, the motions themselves being generally hard, and their passage attended with more or less distress and straining. There is a far more serious state known generally as "stoppage of the bowels," in which nothing can pass owing to some mechanical obstruction, such as strangulated hernia, stricture of the bowel itself, some twist or invagination of some portion of the canal, tumours pressing in some part, adhesions owing to peritonitis, or the presence of some foreign body lodged in the canal, these mechanical obstructions soon give rise to the most alarming symptoms, and end in death unless relieved. Such cases do not properly fall under the heading of our paper.

In the last paper it was pointed out that the two great factors in the proper action of the bowels were the peristaltic action and the circulation of fluid. Constipation depends immediately on a failure in one or the other of these, or more generally both combined. The peristaltic action becomes weakened primarily through nervous influences, subsequently by the dilatation of the bowel, the muscular fibres being stretched and rendered more inefficient, and to this is added the want of moisture due to suspended secretion, or to absorption continued for too long a time, owing to the long delay caused by infrequent action.

The contraction of the powerful abdominal muscles, whilst the diaphragm is kept fixed, tends considerably to lessen the cavity of the abdomen, and exerting a pressure on the intestines, acts as the great *vis a tergo*. In order that the diaphragm may be fixed, a deep breath is taken and then held. The peristaltic action forces the contents on through the canal itself.

The failure of peristalsis may be due to some cause acting through the nervous system. That this is a powerful action is sufficiently seen in the case of a person who has urgent calls to defecation, and suddenly exposed to some fright or mental emotion, finds all desire gone; or in the case of diarrhoea following on fright, &c. Paralysis or injury to the cord will produce constipation. Reflex irritation will probably produce the same result. This may account for its occurrence in anæmic girls—the uterine functions are deranged, impressions are made on the nerves of the part which are reflected on to those of the rectum, resulting in an inability to respond, a restraining influence over free action. The muscular substance itself may be at fault. This is sometimes seen after cases of strangulated hernia; the intestine has been severely compressed, and the muscular with the other coats has been injured, and cannot respond to the nervous excitation.

The amount of fluid secreted by the glands and intestines may fall short, owing to a generally feverish condition; thus constipation in fever is explained: or local disease may prevent or lessen secretion from one or more of the usual sources.

Those who suffer from constipation are often of a somewhat lethargic temperament, though this is by no means always the case; those following sedentary occupations are peculiarly prone; any cause which reduces the patient and gives rise to want of tone, is apt to produce this state. Lead in the system, detected by the blue line on the gums, and suggested by the occupation, gives rise to very obstinate constipation; there is generally, however, more or less colic combined with it. It is more common in old people, and especially so in females. One great cause is neglect to cultivate a daily habit of relief at a stated time.

It is well to remember the very important fact that the subjects of this discomfort often declare that the bowels are open regularly; what they mean by this is, that there is a daily discharge of small hard lumps, but no proper evacuation, and on proper examination the bowels will be found largely distended; this caution, again, is particularly

needed with females, and it is necessary to ask if what comes away is in the shape of hard lumps, if so, it is a sure indication for purgatives, despite the fact that the patient is quite satisfied that this function is efficient.

There is one special form of constipation which so closely resembles diarrhoea, that it is constantly treated as such with the result of aggravating the state, instead of curing it. The presence of hardened faeces causes irritation to the mucous membrane of the intestine, resulting in increased secretion of mucous, and thus a kind of diarrhoea may be set up. Opiates or astringents may master the symptoms for a time, but the pain will return. The diagnosis depends on the continuation of pain and distress in spite of free use of remedies to cure this, a constant desire to go to stool, with the passage of small hard lumps in a great deal of fluid matter, and the fact that careful inquiry will reveal a previous want of sufficient action. The proper and only treatment for such cases is a purgative—castor oil with a few drops of laudanum or an enema of simple soap and water, with perhaps a little castor oil, will cause all straining, colicky pain, desire to go to stool, and diarrhoea to cease at once; but it is necessary to use the purgative in sufficient doses. A small dose only makes matters worse. Constipation alternating with diarrhoea is often one of the most prominent symptoms of gradual obstruction of the bowels from mechanical causes, and attacks of constipation at irregular intervals, in one who is generally regular, point to the same state. The retention of hardened fecal matter may give rise to much irritation, and may cause ulceration with even perforation of the bowel; or may lead to actual obstruction, and have to be removed bit by bit with a scoop, the bowels being quite unable, through paralysis by over-distension, to get rid of their contents unaided.

Constipation is most frequently met with in females, who are generally quite content with one action in every seven or eight days. The faeces, so long imprisoned and exposed to the absorbing action of the mucous membrane of the large intestine, become hardened and moulded to the shape of the canal, which considerably interferes with the peristaltic action, and gives rise to pain and even bleeding during the passage, and this, producing a dread in the patient's own mind, tends to make her less anxious than ever to promote evacuation, because its accomplishment is associated with a dreaded sensation of pain. Again, the straining necessary to get rid of such hardened masses leads to great congestion of the rectal veins, and this is probably increased by the constant pressure of these bodies while in the canal, and in time piles result, and the patient becomes a victim to a most troublesome and painful disease. Nor is this all. The constant accumulation of large quantities of fecal matter in a hardened condition leads to great dilatation of the intestinal canal at its lower part, and often this part is a large sac capable of containing a large amount of material—so large, that only those who have seen and examined it for themselves would credit it; consequently the muscular fibres become stretched, and lose their power. It is easy, therefore, to see how, by this action and reaction, a very serious state of the system is set up. When a large accumulation has taken place the patient may be seized with violent and regularly-recurring bearing-down pains, simulating actual labour pains. An old woman was admitted into hospital with pains in the bowels; after admission she was found to have regular periodical pains of so severe a nature as to make her cry out and beg for relief. These pains exactly resembled those occurring during parturition, and had they been discovered in a younger woman in all probability she would have been treated for an imminent miscarriage. As it was, the pain seemed uterine; but on examination per rectum with the finger, the lower part of the bowel was found to be a large sac, filled with hardened and rounded masses of faeces. Strong and repeated injections brought all this away, and she was at once relieved. If opiates had been given to mask the pain, and an examination neglected, this accumulation would have become worse, and resulted very probably in a stoppage of the bowels, with the serious symptoms resulting therefrom. Foreign bodies in the rectum cause great distress and desire to defecate, and after a time these masses are really foreign bodies, and are apt to act as such. Where the accumulation is large, percussing the left flank will reveal dulness, which disappears at once after a free action of the

bowels, and in some cases the masses themselves may be felt if the patient is thin; and this will also entirely vanish after free defecation.

It is in young females, however, that the most characteristic examples are found, and in such cases which come under observation more or less uterine derangement exists. The typical example is a young girl, very pale, the mucous surfaces of lips, gums, eyelids all pale and apparently bloodless, sometimes there is the peculiar greenish-yellow tinge, this pallor has been coming on for some time, and gets worse, and with it there is more or less shortness of breath, especially on exertion. This pallor is due to want of the red corpuscles of the blood, to which it owes its characteristic colour; now these corpuscles contain a substance called hæmo-globin, and this it is which takes up the oxygen, whilst the blood is circulating through the delicate capillaries of the lung, and carries it to all the tissues, which abstract it, replacing it by carbonic acid; this again gives rise to the difference of colour between arterial and venous blood. Now this pallor is due, as we have just seen, to the want of these very corpuscles; therefore the amount of oxygen carried to the tissues is less than they require, and the breathlessness is the expression of this want, which of course intensified by exertion of any kind. There is very often swelling of feet and ankles towards night, this is often noticed as a puffiness above the upper limit of the boots, underneath the eyelids is not an unusual place—this is due to loss of consistency in the blood, so that its watery part readily exudes where there is loose tissue, as in the eyelids; or where from position the force of gravity is greatest against the circulation. The nervous, like the other structures, is badly nourished, and hence on slight excitement palpitation of the heart comes on; this also occurs after exertion, the heart striving by increased action to compensate for want of sufficient oxygen being carried. The tongue is generally very much furred, the breath unpleasant, and there may be great thirst. The bowels are of course rarely open, and when so careful inquiry will elicit the fact that such motions are lumpy, give much pain, and are often streaked with blood from the violent straining. The appetite is bad, scarcely any food being taken, and it is simply marvellous on how small an amount life appears to be sustained—sometimes it is very capricious, and may even be indulged slyly. With this there is generally suppression of the menses (amenorrhœa), pain under the left breast, and often some white discharge (leucorrhœa). There may be excessive menstruation (menorrhagia), with leucorrhœa in the intervals. These patients are generally examples of that temperament which for want of a better name we call “hysterical,” and which mainly manifests itself in a want of proper control over the emotional nature; the nervous system is easily excited and thrown off its balance, giving rise to such phenomena as fainting, screaming fits, a sensation of a ball rising in the throat, and in such curious imitation of almost all diseases, an imitation so close that it requires sometimes great acuteness to detect it, and which is yet unconscious. From such come “fasting girls” and miracle workers.

It must not be supposed that constipation is the cause of all these phenomena, because the subject has been introduced in a paper dealing with the one condition; but it would not have been complete without the description of such cases which furnish the most striking examples of the state under consideration. To discuss such patients in relation to cause would take up too much space, even if any satisfactory conclusion could be arrived at, which the present state of our knowledge does not permit.

The accumulation of fæces may simulate tumours of the abdomen, but the diagnosis should never be given without bearing this in mind and using purgatives and enemata before giving a definite decision.

Treatment.—In this, as in all other cases, “prevention is better than cure.” Habit is the most important point to attend to; neglect to attend to this function, or putting off calls, is chargeable with a great number of the cases. There is a power by which, after a certain number of voluntary attempts, the parts acted on take on the particular action and accommodate themselves so thoroughly to it that afterwards it becomes involuntary; and this is called habit. A person suffering from constipation should be urged to set aside some special time, and regularly to go and make

voluntary efforts. At first these will result in failure, but after a persistence the habit will be acquired, the nervous system and muscles will take on the special rhythm, and then the patient will be unable to resist the calls. This plan often fails because patients will not persevere long or steadily enough. Any natural desire to evacuate should, as far as possible, be complied with.

Certain remedies will be needed—ox gall has been well spoken of and may be tried. Warm water and soap enemata in large quantities, either with or without some castor oil thrown up at the commencement of the injection, will be found most useful where the motions are hard. When there is reason to think that secretion is deficient, colocynth and elaterium may be used. Most useful, however, are the abundant supplies of mineral waters now to be had to suit all cases; a glassful every morning will often prove a most elegant and efficient remedy. The chalybeate waters are most valuable for the constipation of young and anæmic girls. The various saline waters are most useful in the old. A glass of cold water in the morning, fasting, sometimes acts well. If there is any reason to suppose a loss of nervous power, galvanism may prove useful and may be applied either by two wet sponges, one pressed deeply over the central part of the abdomen and the other moved about, or a proper metal conductor may be introduced into the bowel, whilst the sponge is freely moved over the abdomen. In young and anæmic girls iron is needed in the form most easily assimilated, and the pil. aloes et myrrhæ may be given every night, but it is just in these cases that the formation of a proper habit should be insisted on, and they will be found most difficult of persuasion. Aloes, in the form of watery extract, with Ext. Belladonna is valuable as a remedy. The diet should also be regulated.

M.R.C.S.

CINCHONA CULTIVATION IN BENGAL.

It appears by the report of Dr. King, the superintendent of the Royal Botanic Garden, Calcutta, on the Government cinchona plantation in British Sikkim, for the year 1878-79, that the operations in the plantation have been greatly retarded by the unusual drought of the cold season, which caused the death of a number of old trees, and prevented the planting out of young ones. The total number of cinchona plants of all varieties planted out at the close of the year was 4,028,055, of which 3,589,965 were of red bark species. As 278,958 lbs. of bark remained in the hands of Mr. C. H. Wood, the Government Quinologist, at the close of the year 1877-8, it was not thought desirable to collect more bark crop than was necessary to meet the requirements of the febrifuge factory. Only 261,659 lbs. were therefore taken, namely, 13,967 lbs. of yellow bark, 812 lbs. of grey bark, and 246,880 lbs. of red bark. The crop was taken by one of the three methods of harvesting, viz., uprooting, coppicing, and thinning, thus:—

									Lbs.
Uprooting	..	..	..	..	..	..	..	..	52,484
Coppicing	..	..	..	..	..	..	..	..	14,464
Thinning	..	..	..	..	..	..	..	..	194,711
Total	..	..	..	..	..	..	..	..	261,659

The continuous increase in the amount of cinchona febrifuge manufactured by the Quinologist is very marked; thus the out-turn in the year 1874-75 was only 48 lbs. 10 oz., in 1875-76 1,040 lbs. 6 oz., while that in 1878-79 was raised to 7,007 lbs.

A reduction has been made in the cost of production, which has resulted partly from the increased scale of manufacture, and partly from the introduction of improvements in the process, whereby an increased yield of alkaloid from the bark has been obtained. The net profit on the manufacture is 42,412 rupees, and as the total amount of capital, with interest at 4 per cent., which has been sunk in the cinchona plantations and in the manufactory is approximately 10 lakhs of rupees, the receipts for the last year, after paying all expenses, yielded interest of about 4½ per cent. on the capital outlay. During the past year, experiments have been in progress on the manufacture of pure sulphate of quinine from the calisaya bark yielded by the plantations. Experiments have also been conducted on the economy of preparing pure alkaloids from the succirubra bark.

AN ANCIENT MEDICINE CHEST.

THE fifty-third chapter of the "Decline and Fall of the Roman Empire" begins with these words:—"A ray of historic light seems to beam from the darkness of the tenth century. We open with curiosity and respect the royal volumes of Constantine Porphyrogenitus, which he composed at a mature age for the instruction of his son, and which promise to unfold the state of the Eastern Empire, both in peace and war, both at home and abroad. In the first of these works he minutely describes the pompous ceremonies of the church and palace of Constantinople, according to his own practice and that of his predecessors." In a note Gibbon adds: "A splendid MS. of Constantine de Ceroniis Aulæ et Ecclesiæ Byzantinæ wandered from Constantinople to Buda, Frankfort, and Leipsic, where it was published in a splendid edition by Leich & Reiske, A.D. 1751, folio." In this authentic work of the ninth century we find an account of a medicine chest, which must have been one of the first ever used.

When the Emperor takes the field as commander of his armies, "the keeper of the wardrobe carries [besides many other things] theriaca, enitzin, and other simple and compound antidotes for those who might by chance drink poison; and, moreover, 'pandects,' replenished with oils, remedies, plaisters, liniments, and other ointments of all kinds, with medicinal drugs, such as herbs and others which are profitable for the healing of man and beast; also silver sitolecana (a chamber-pot, with a basin placed beneath) in its own leathern case, for the Emperor's special use; and others of brass, silvered outside, and tinned within, for the military officers and the nobles. . . . Also perfumes for fumigations, such as are thrown on live coals and melt, and others which by kindling are led to exhale smoke of grateful odour, and are turned to coal and ashes; there are several of these, such as thymiamia [translated thus], mastiche, libanon [olibanum], sachar [sugar!], rocon [saffron], moschon [musk], ampar [ambergris], xylaloes, dry and liquid, true cinnamon, first and second, glycinnamon, and other ointments," and various kinds of ointment. (Vol. i., p. 270, ed. Lipsiæ; vol. i., p. 467, ed. Bonnæ.) *Enitzin*, according to Reiske, means *sagapenum*, from the Arabic, *sikipenitzin*. The other Greek forms of this word given by Ducange are *skinibitz*, *sikipinitz*, and *sichibinitz*, the two latter with the termination *in*.

Pandects are said by the German editors to be Reiseapotheke, travelling pharmacies, medicine chests.

It is significant that antidotes are the remedies which first occur to the Emperor's mind.

It is strange to find sugar among the perfumes used for fumigations, and we cannot conjecture what liquid xylaloes may be.

Thymiamia is simply incense. The word does not seem to be applied to any special drug, and certainly not to the *thus* of the present day.

CACAO.

AN HISTORICAL RETROSPECT. BY DR. R. F. FRISTEDT.*

WHEN we regard the scanty monuments of old Mexican civilisation which have been preserved to the present day, and when we follow the guidance of the historian Ferdinand Ixtlilxochitl, of the royal race of Tezcuco, who, with the help of the still hardly intelligible hieroglyphics, is writing the history of the Mexican aborigines, we have every ground to suppose that cacao was first brought into use by the Toltecs more than a thousand years ago. Distinct proof of this does not seem to exist, but it is the natural deduction from our knowledge of the high degree of civilisation reached by the Toltecs and their known acquaintance with agriculture and other useful arts. This became the inheritance of the nomad Aztecs when they settled in the former home of the Toltecs on the Sea of Mexico about

the year 1325, and thus produced that mixture of civilisation and barbarism which had already passed its culmination when the invasion of the Spaniards in 1519 annihilated it.

At this time the cacao tree was a characteristic Mexican growth, a fact of the highest importance not only in bromatological but also in social respects. Cacao beans were the Aztecs' measure of value, their only money; in them the provinces paid their taxes. The kingdom in consequence possessed so large a store of cacao that Cortez found 2,500,000 lbs. in the possession of Montezuma. The use of cacao money was so deeply rooted that it in part maintained itself till later centuries, and Humboldt met with it in Costa Rica. In such circumstances it was natural that the cacao tree should be one of the plants most frequently cultivated by the Aztecs, far more commonly than in later times, when the cultivation has decreased in Mexico and been given up in many other parts of America. The influence the cacao tree would have on the habit of life cannot be accurately defined, for it will not flourish without the shelter of higher and shadier trees.

By the Old Mexicans, as by us, the cacao bean was considered valuable, chiefly and intrinsically as a food and a luxury. It was in daily use among all classes of the people, especially the rich, by whom it was frequently used to extreme excess. According to an exact estimate, 50 cups of chocolate were prepared daily for Montezuma II., and 2,000 for his courtiers. Their method of preparation was certainly different from ours. Sugar was unknown, and was occasionally replaced by honey. The roasted, shelled, and bruised beans were boiled at once with water (maize-meal being mixed with it by the poor), highly spiced, in the case of the rich with vanilla, and reduced to a foaming mass of the consistence of honey. This, when cold, was eaten at court from golden vessels with golden spoons. This was the preparation named by the Aztecs *chocolatl*, from *choco*, foam, and *atl*, water. The cacao beans were called "*kakoothatl*," and those from a variety, distinguished by the people, were called "*kakaohoaquahuil*."

It was natural that an article so important to the Aztecs should immediately attract the notice of the Spaniards. In his first letter to the Emperor Charles V., A.D. 1519, Cortez describes the cacao plantations, the beans, and their use, so that cacao appears in the history of bromatology in Europe in the year of the first conquest of Mexico by Europeans.

The favourable account of cacao given by Cortez and his companions in a special letter, which stated that it could replace all other food on long and toilsome journeys, gained for it a firm renown in both Spanish America and Spain itself, where it first made its appearance in 1520, in the form of prepared cakes. The use of the materials prepared in the Aztec fashion was general, until sugar, becoming common, was introduced as an ingredient, which brought what we now call chocolate into vogue. The settlers in America consumed it several times a day; it was quite a necessary of life. The Creole women especially were passionate admirers of it; they brought it with them to church, and when this was forbidden in one they went to another. Chocolate manufactories were soon established in Spain, and made the Spaniards, what they still are, the nation most devoted to chocolate.

Nevertheless, the knowledge of chocolate remained during the sixteenth century almost entirely confined to Spain and the Spanish colonies. The earliest notice—not Spanish—known to me is an account in G. Benzoni's "*La historia del mondo nuovo*, Venedig, 1565." This stands alone in its century, and accompanies a very small woodcut, perhaps the oldest representation of the cacao bean. Benzoni expresses a very unfavourable opinion of chocolate as a drink. He had become acquainted with it during a long visit to America, and could compel himself to drink it only when wine had completely failed. This opinion was shared by Pater Acosta among the Spaniards, who remarked in 1584, that "the appearance of the luxury is repulsive, and, though it is employed in America, nevertheless it produces heart affections." Clusius also, the first botanist of note who mentioned the cacao tree, strengthened Benzoni's expression, "*Piu pare beverage da porci che da huomini*," in the oft-quoted words, "*Porcorum verius colluvies quam hominum potio*"—"It is hog-wash rather than drink for men." It is not wonderful, then, that in the beginning of the seventeenth century the use of chocolate was a curiosity condemned by the

* From the *Upsala Läkareförenings Förhandlingar* in *Pharmaceutische Zeitung*, No. 60.

learned, and, with the exception of Spain, not adopted in Europe.

About this time (A.D. 1606) F. Carletti returned to Florence, his native town, after a protracted journey, during which he had visited the West Indies. He brought with him cacao and the use of chocolate, and through him Italy was the land whence chocolate was introduced to Central and Northern Europe. Yet it probably reached France direct from Spain, partly in small quantities, and exciting little notice, with the consort of Louis XIII. in 1615, and in large quantities with the consort of Louis XIV. in 1660, whose taste for it was immediately adopted by the Court, quickly followed by the Parisians. Thus chocolate became fashionable with the French aristocracy, although, not long before, a very different opinion had been cherished as regards its harmfulness, as is clearly shown by the letters of the ladies of the period. For a long time one of the Queen's officers had a monopoly of the sale of chocolate, but in the meanwhile it was brought among the people by Spanish monks, and in the beginning of the eighteenth century chocolate made from beans grown in their own colonies was in general use in the homes of the French people.

Chocolate came into use later in England than in France. The first chocolate-house in London was opened in 1667. In Germany its general use was promoted by a comparatively cautious recommendation by the celebrated Bontekoe, physician to the Elector Frederic William of Brandenburg, and author of the well-known "Traetat van Kruidt The, Cofli Chocolata, 1679," which was translated from Dutch into German in 1701. The time of its introduction into Sweden does not seem settled. In Linnæus' dissertation, "*De potu chocolatæ*" we read, "*Apud nos chocolatom imprimis in deliciis habent femina nobiliores,*" &c., and in Bergius' oration on delicacies, in the "*K. vet. Akad., 1780*" (Stockholm, 1787), this beverage is only hastily mentioned. In Russia the use of chocolate is small, and in general the tradition that it is poisonous still limits its consumption in cold countries, although Bibra's computation that it is used by only 50,000,000 of people in all the world seems too low.

The foregoing notes regard cacao exclusively from the point of view of bromatology, from which, indeed, it has the greatest interest. In the meanwhile it deserves mention that by the middle of the 17th century the therapeutic effects of the cacao bean had already attracted the attention of the European doctors. Between 1687 and 1695, cacao butter was isolated by Bourdelin, Homberg, and others, and at the same time the beans and chocolate found admittance into the Pharmacopœias. In Sweden the beans have been official on the Medicinal-tax from 1699 to the present time. The oleum kakao, to which the attention of physicians was directed by Moucharth* and Th. Hoffmann in 1735 and Geoffroy in 1741, was first admitted in the Pharmacopœia Suecica in the second edition, A.D. 1779.

The physicians of the seventeenth century had opportunities of viewing cacao from different standpoints, but chemical and physiological experiments were strange to them, and the results of therapeutical experience only showed them indistinctly that they had before them a very complex material, at once a nutriment, a remedy, a poison, and a luxury. Thence they entangled themselves in all kinds of contradictions, which for more than a century produced an army of dissertations and controversies on the value or worthlessness of cacao, on its good or evil effects on the digestion and the nerves, or on its cooling or heating properties. Even Catholic theologians interested themselves in it so far as to determine whether chocolate might, or might not, be consumed on fast-days. With many variations was repeated the old conflict of opinion, mentioned above, between those who, with Benzoni, Clusius, and others, considered chocolate fit only for pigs, and those others who, like Cortez and most of the Spaniards, placed it even above nectar and ambrosia, or, at least, characterised it as food for the gods. This designation Linnæus perpetuated in *Theobroma*, the name of the genus, given perhaps from some sympathy with the taste, perhaps in allusion to the use of cacao by the highest classes of society.

The many old dissertations "*De chocolatæ usu et abusu,*"

"*De potu chocolatæ,*" &c., collected in A. Mitscherlich's celebrated work, and E. Reich's large book on dietetics, cannot be mentioned in detail in this short historical sketch. Nor does it lie in our design to consider the significance of cacao in materia medica, dietetics, and pharmacology. For several past decennials, and especially since Woskresenski's discovery of theobromin, in 1841, these have been growing clearly defined on a sound basis. We consider cacao neither *porcorum colluvies* nor *theobroma*. As in so many other cases, the truth here lies in the middle, and we agree almost entirely with Anfossi's verses—

Ambrosia est Superum potus, cocolata virorum,
Hæc hominum vitam protrahit, illa Defum.



A PHARMACEUTICAL ARBITRATION CASE.

IN the High Court of Justice, Queen's Bench Division, there has recently been decided a case of interest to pharmacutists.

The parties to the suit were Leslie & Co. (Limited), of Walbrook, plaster spreaders, plaintiffs, and Gale & Co., wholesale druggists, of Bouverie Street, defendants. The warehouses of both firms being within the City of London, the case was heard at the Guildhall before Mr. Justice Field and a jury.

Mr. Petheram and Mr. Houghton, instructed by Messrs. Courtenay & Croome, of Gracechurch Street, appeared for the plaintiffs, while Mr. Talfourd Salter, Q.C., and Mr. Webster, Q.C., instructed by Messrs. Wontner & Sons, Cloak Lane, appeared for the defendants.

Scientific evidence was given in support of plaintiffs' case by Mr. Oxtou, F.C.S., and for the defence by Professors Redwood and Attfield.

The plaintiffs' claim was one of damages, arising, it was alleged, out of defects in the manufacture of resin and white soap plaster which the defendants, as wholesale druggists, had supplied to them in the ordinary course of their business. The plaintiffs' practice was, it would seem, to purchase the crude plaster, and spread same upon tapes and other material for which their firm had obtained a reputation. In addition, it was also alleged that on account of the rancidity of the plaster, after it had been spread but a short time only, they had sustained a considerable loss.

After the case had been fairly opened the learned counsel contended that it was one of those disputes that should have been referred to an arbitrator, and that even at this stage it would be much better for a referee to be appointed under the authority of the Court. As both parties, however, seemed desirous that the case should be decided at the present hearing, a mass of evidence extending into the second day was taken, when the foreman of the jury expressed his conviction that the case ought to be decided by reference to an expert, in which opinion Mr. Justice Field quite concurred, and directed that both parties should agree upon someone conversant with the subject.

Mr. C. Umney (of Wright, Layman & Umney, Southwark) was accordingly elected as referee, and his appointment was confirmed by Mr. Justice Field, who gave him full liberty to examine the respective parties and their witnesses upon oath. Evidence was taken upon three days at the Cannon Street Hotel, in the City of London, supported on both sides by the same scientific evidence as at the first hearing at Guildhall, Mr. Courtenay appearing for the plaintiffs and Mr. St. John Wontner for the defendants. Mr. Umney's award was as under:—

1. That the plaintiffs in this action were a firm of plaster-spreaders, who had during a period of several years supplied

* Mauchart, in "Pharmacographia," p. 88, note 3.

the medical profession and the public with adhesive and other plasters in a novel and most convenient form, but that the plaintiffs did not in any way manufacture the crude plasters of which their spread-plasters were composed, neither did they, either through their managing director, Mr. J. S. C. Renwick, or their foreman, Mr. Wallace Burnett, profess to have knowledge of such manufacture.

2. That one of the shareholders in the company of which the plaintiffs' firm was composed, viz. Frederick Henry Smith, doctor of medicine of St. Andrew's University, and Fellow of the Royal College of Surgeons of England, who lays some claim to a knowledge of manufacture of crude as well as spread-plasters, was, and is, entirely ignorant of the former, and the composition of plaster as detailed in the specification of Letters Patent of himself for the manufacture of tape-plasters or bandages, dated January 16, 1874, was not only impracticable, but that he himself did never prepare any plaster either of such composition or from such recipe that was suitable for producing spread-plaster.

3. That the plaintiffs not being possessed of that special knowledge of manufacture which is necessary in order that the business of a plaster-spreader may be successfully conducted, resorted for the purchase of such crude-plasters as they manipulated, viz., resin and white soap plaster, to wholesale druggists and others, part of whose business it is to prepare crude-plasters, either from formulae tabulated in the British Pharmacopoeia or from recipes which they find are generally approved (by medical practitioners and pharmacists to whom they generally supply them), and that such crude-plasters are made of different proportions of ingredients (notably in litharge and oil) as compared with those designedly made for spreading purposes, a fact well known to those conversant with each branch of this industry.

4. That the defendants were in the habit of preparing various plasters, including those used by the plaintiffs, and that they did from time to time supply such from their private recipes, in preference to those compounded from official formulae.

5. That the complaint made by the plaintiffs against the defendants' plaster was, in the main, non-adhesiveness and rancidity.

6. That the formula given in evidence by the defendants through one of the firm, Mr. J. S. Walton, who regulated the manufactures of their laboratory, was although non-official, a recipe from which good plaster could be made, and that, when carefully prepared, such plaster, from the fact that it contained to 100 parts of oleaginous or fatty basis, upwards of 50 (54) parts of litharge, could not either be rancid, or likely to become so during such time in which plasters are generally expected to remain in a sound condition, neither could it have been non-adhesive, made from the proportion of ingredients, combined with the amount of resin prescribed in the formulae.

7. That the plasters sold by the defendants were divided into two portions—the one comprised in the total supply from May to September 12, 1877, and the other that manufactured and supplied subsequently.

8. That the plaster supplied previous to September 12, 1877, was prepared from commercially pure ingredients, and was of good average quality, and although it occasionally contained specks caused by slight defects in certain brands of litharge, these were not uncommon, and might in all probability be removed by judicious melting, straining, and subsidence (by no means an uncommon process in the manipulation of plasters), had plaintiffs or their workmen been conversant with such treatment.

9. That the defendants' plasters were good and fairly uniform; but even if this were not so, as applied to that supplied subsequent to September 12, 1877, no claim should be made for any defect therein, inasmuch as remelting had been resorted to, and this was opposed to a stipulation made by the defendants in a letter written on or about that date, which contained conditions upon which the defendants would continue to do business with the plaintiffs, and their accountability for their plaster being only so long as it remained in the state supplied, and not after its condition had been altered by melting, spreading, or any other process, the defendants having had at this time a clear notion that the complaint of previous plaster was in the main due to, and caused by, the unskilled treatment to which the same was subjected in plaintiffs' factory prior to spreading, and

they therefore clearly thought it expedient thus to protect themselves.

10. That plaintiffs' factory men were in the habit of melting the plaster in pipkins and other vessels over gas-burners (Bunsen's) constructed to give a maximum of heat, and that they did not exercise proper precautions in so doing, stirring of the plaster during the melting process being only *sometimes* resorted to, as stated by Mr. Metzner, when diligent stirring to prevent decomposition was necessary.

11. That a plaster prepared since hearing evidence in accordance with defendants' recipe, gave, when chemically examined, results corresponding to those obtained from plaster put in evidence, and corroborative of the statements of Professors Redwood and Attfield.

12. Finally, that for the reasons previously stated the plaintiffs have not proved their case, and judgment therefore should be entered for the defendants.

The above award being taken up by defendants was handed to Mr. Justice Field, the plaintiffs raising objections to the same upon finding that it was adverse to them. Mr. Justice Field, however, confirmed Mr. Umney's award, and gave judgment for the defendants, with costs.

Bankruptcies and Liquidations.

T. BENTLEY & Co.

AN adjourned meeting of the creditors of T. E. Bentley, trading under the style of T. Bentley & Co., drysalters, Cleckheaton, was held on August 20, at the office of Mr. Curry, solicitor, Cleckheaton. The statement of affairs presented by the debtor showed that his liabilities were 1,503*l.* 10*s.* 8*d.* and his net assets 110*l.* 18*s.* 10½*d.* The offer of 5*s.* in the pound made at the previous meeting was withdrawn, and a long discussion ensued as to whether the affairs of the debtor should be wound up in liquidation or in bankruptcy, but as the legal gentlemen present could not agree as to the representation on the committee of inspection, the result was that the meeting broke up without passing any resolution.

HENRY CASHMORE.

THE debtor, described as a chemist and druggist, of 283 Summer Lane, Birmingham, filed his petition for liquidation on August 15, with liabilities estimated at 600*l.*, and assets not yet ascertained. Upon the application of Messrs. Buller & Bickley, of 30 Bennett's Hill, solicitors for the debtor, the Registrar appointed Mr. William H. Brothers, of 4 Christ Church Passage, accountant, receiver of the estate, and granted an interim injunction to restrain proceedings by creditors.

PARKER & AMISS, Manufacturing Chemists, Old Ford.

THE bankrupts, who carried on business at the Clayhall Works, Old Ford, were adjudicated in July, 1878, and afterwards passed their examination upon accounts disclosing liabilities to the amount of 1,399*l.*, against assets 386*l.* An application was made to the Court on August 19 for the approval of a scheme of arrangement assented to under the 28th section whereby the creditors have authorised the trustee to accept an offer of 2*s.* in the pound, together with the costs, in satisfaction of the debts, the bankruptcy to be annulled and the bankrupts to receive their discharge. Mr. Registrar Pepys made an order approving of the arrangement.

“A CHANCE FOR THIEVES.—With reference to the copying processes now so much in vogue, it has been pointed out that if suitable black ink is discovered it will be comparatively an easy matter for a fraudulent clerk to transfer his employer's signature to valuable documents with absolute accuracy, and on a point of law it is doubtful whether he could be prosecuted for forgery.

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SEE PAGE 72.

CARRIAGE PAID COD LIVER OIL } See page 5.

CARTNER'S PATENT PILL COATERS.

See page 39.

ELLIMAN'S EMBROCATION. See page 113.

EDITORIAL NOTES.

A CHAPTER FOR STUDENTS.

"Knowledge comes, but wisdom lingers."

PROBABLY a few thoughts on examinations, with reference
more particularly to pharmaceutical examinations, may
not be out of place in the present educational number of
THE CHEMIST AND DRUGGIST, and especially if these be
made to partake greatly of the nature of hints to those
students who are earnestly endeavouring to qualify for the
different examinations which lie before them. That there
is no royal road to knowledge has from time to time been
well drummed into the ears of young men, and therefore we
will not repeat the aphorism in the present instance, or
formulate the hours of study and books to be studied, with
other minutiae of detail so common to such disquisitions.
All such hints and advice are valuable in their place, and by
no means to be despised as aids to the end in view. But as
the race is not always to the swift or the battle to the strong,
so have we also often felt that something more than mere
knowledge was required in those who have to face such an

ordeal as the idiosyncrasy of five or six examiners, however pleasant their address or correct their deportment. This is a more pleasant and, probably, a more polished way of expressing the idea than simply saying that the candidate of ready wit and sufficient brass must be favourably handicapped in the race for honours. But in whatever language expressed the thought is the same, namely, that while knowledge is one item, and a very important one to the student, it is not the only essential. How often, for example, have we seen a candidate, in his efforts to give utterance to the thoughts in his mind in an intelligible manner, floundering in a way that predicted a speedy conclusion to all his efforts unless the examiner were something more than mortal! Oftener still have we seen the blank astonishment or utter despair at an unexpected turn of his examination, when a little exercise of his reflective faculties was all that was required to bring him out of the predicament successfully. Now these two acquirements, fluency of expression and exercise of the reflective powers, are most necessary in any oral examination, but particularly in the pharmaceutical examinations as at present conducted. A candidate is seated, we will say, at the pharmacy table, and is asked to describe the mode in which he would extract the active principle from a root. A very short time will probably show whether it has been learned as a lesson, parrot-like from book, or has become a living principle so to speak, drawn from actual experience. In the latter case there are no hackneyed expressions or stereotyped forms, but every word and thought and thing stands out prominent and characteristic of the individual. There is a spontaneity in short which leaves no doubt in the mind of the examiner that the knowledge and experience is true and sterling. On the other hand, if the expression be halting, and the manner confused, and thoughts in a mist, how difficult is it for the wearied, and probably by this time irascible, examiner to discriminate between impediment and ignorance, between defective speech and defective knowledge! Transfer the candidate next to the materia medica table, and ask him to differentiate between two resins that are somewhat alike in external appearance, or, better still, to eliminate the one from the other. Here we have something more than descriptive power required. The reflective faculties are also more immediately called into operation, all the more if, as is probably the case, no book gives in so many words the description or process required. The candidate, it may happen, is familiar with the substances, and remembering that one substance is soluble in one medium, and the other in another, or that one gives a characteristic reaction with one chemical, while the other gives another with a second, and so on, he, almost quick as thought, adapts his knowledge to the question asked, and shows a reasoning power and readiness of resource which cannot but be satisfactory. "This cork is lighter than water," said an examiner to a candidate; "how would you take its specific gravity?" "*I would take two corks,*" was the prompt reply. The answer was probably not so much the result of ignorance as the mere want of thought, so that if the question had been put in the well-known form, "How would you take the specific gravity of a body lighter than water?" the answer would have been correct to a letter, according to book. Again, a candidate presents himself for examination at the chemistry counter, and he comes ready primed from a laboratory properly equipped, so that when he is presented with a wash-bottle he does not require to examine it as a mechanical toy, or with a blow-pipe he does not proceed to blow through the wrong end. He has, nevertheless, been accustomed to work with chemicals nearly in a state of purity, or at least so prepared that no foreign element comes

in to disturb his calculations. He is now, however, presented with a commercial sample of a similar substance, or one, it may be, purposely adulterated, or he is given a substance to examine in a form with which he is not familiar, and though his chemical knowledge, so far as it goes, may be correct enough, his reasoning and reflective faculties are at fault, and he miserably fails. "Give the candidates," said an examiner once, "an ordinary *sulphide* to examine, and probably they will proceed to dissolve it with hydrochloric acid. If now they get a precipitate on adding water to the solution in the test-tube, not one in ten will be able to account for it." We need not multiply illustrations. The candidate fails, not from want of knowledge, but because he has trusted entirely to his teaching, and his teaching has not given him those reflective powers which are required to enable him to adapt himself to circumstances exactly as they are presented to him. No! and no teaching can possibly do this of itself, for it is not the direct result so much as the by-product of all teaching—an unknown factor at the best, because dependent to a very great extent upon the capabilities, inclinations, and endeavours of the individual himself. And this is exactly the point to which we have been leading up in these remarks—namely, that seeing these two powers, fluency or spontaneity of thought and speech, are so important to the pharmaceutical student, and so much dependent on his own exertions and inclinations, how can he best secure their culture and development?

In the first place then, it should never be forgotten that the Pharmacopœia is the great text-book to explain and illustrate which all his teaching and knowledge should be made directly or indirectly to apply. "You should know your Pharmacopœia as well as you know your Bible," was the stern reply to a query as to the best means and assurance of passing the examination. We hope the Bible will always be kept first, and, doubtless, the student will turn out both a better man and a better chemist if he does so. But next to it, by all means, let him place his Pharmacopœia, keeping in mind at the same time, that there may with it also be a hypocritical obedience to its letter, a tithing of mint, and anise, and cummin, to the forgetting of its weightier matters and spiritual observance. Without figurative language, we simply mean that a young man may know the Pharmacopœia and repeat it correctly by rote from beginning to end, and yet be destitute of the slightest apprehension of its true spirit, intention, or purpose. Every examination shows this—shows, in fact, that the living, thinking, intelligent spirit within a man may be degraded to something little better than an automaton. Now let every student consider what the Pharmacopœia is. It is surely more than a mere book of instruction, more than a conglomeration of formulæ for convenience of prescriber and dispenser. It is this; but is it not also much more than this? Is there not contained within its leaves the wisdom of the ages, so that nearly every word and sentence of it is fraught with history and meaning? For this reason alone (apart from any more selfish consideration, although that also need not be lost sight of) it deserves the earnest attention and study of every one who is interested in pharmacology, but far more of the student who is preparing to undergo an examination, not into its letter only, but into its very spirit and essence. A volume, for example, might be compiled from what has been written of almost any individual article of the Pharmacopœia, and it is not too much to aver that without some knowledge of this published but uncompiled history it is impossible to understand the short but suggestive descriptions of their source, character, tests, &c., contained in it. All knowledge, then, whether acquired from "Bentley," or "Attfield," or "Scoresby-Jackson," or the more indiscriminate

sources of general reading and observation, should be made to shed its light on and illustrate the Pharmacopœia.

In the next place we would observe that all knowledge should be put as far as possible to practical test before being accepted and laid up in the mind's store-house for future use. Much of the pharmaceutical knowledge which is of use in after life can be so put to test, and it serves the double purpose of fixing it in the mind and verifying its truth. Doubtless in the case of information derived from such authorities as those previously quoted the purpose of verification may be unnecessary, but it nevertheless should not be omitted, as the habit once formed becomes second nature. Moreover, there are in every instance numberless details which no text-book can possibly enter into, and which, therefore, can only be acquired by experience, and it is this experience alone which will give confidence to the student, and tend greatly to supply that spontaneity of thought and action already so fully dwelt upon.

We would here diverge for a moment to show how these two points—namely, an intimate acquaintance with the spirit of the Pharmacopœia and a practical knowledge of its contents—bear upon the examination under consideration. There are in all six subjects in which the candidates are examined, four of these being directly connected with the Pharmacopœia—viz., *Materia Medica*, *Botany*, *Pharmacy*, and *Chemistry*. As these are not separated by any sharp line of demarcation, but merge the one into the other, we require not to dwell upon each at any great length, as what applies to one will apply less or more to all. Scammony, for instance, is not an unimportant substance of *materia medica*, and much has been written in past years regarding it. With how much of that history is the student familiar, and how does it apply to the description, characters, and tests of the Pharmacopœia? How does its character distinguish it from other resins, such as *guaiacum*? Why are the hydrochloric acid and the iodine tests applied? Why should the gum resin form a smooth emulsion with water and not the resin? Above all, if asked about the ether purity test, could the student not only tell how it was done, but *do it also* if required? Probably, nineteen out of every twenty could describe how it was done, but possibly not more than one out of twenty could do it, and estimate correctly the percentage of pure resin in the sample: for this reason—that the Pharmacopœia simply tells that ether should dissolve a certain percentage of the gum resin, and gives no instructions, and there are in all practical work, as has already been stated, numberless details and difficulties which only experience will discover and surmount. Again, reference is made to Woodville's "*Medical Botany*." How many students have seen this work and studied it? The official plant is described, and class and order to which it belongs given. The root is described as perennial, tapering, &c.; stems smooth, twining herbaceous, &c.; leaves long, petioles alternate, pointed, &c. Now how could anyone recognise this description without being familiar with the terms, &c., used in botany? and not only familiar, but practically familiar, for as no medical student could study anatomy from book alone, no more can the pharmaceutical student study botany without an acquaintance with the living plant. This brings us naturally to touch on botany, a subject generally looked upon by the student with dread, and above all others considered stale, flat, and unprofitable. One reason for this may be that of all subjects under examination, the connection betwixt it and pharmacy is at first sight least observable, structural botany embracing the major portion of the examination.

In beginning this study we have known young men conscientiously reading up, and endeavouring most laboriously

to get their information per book. The fact is, however, in so doing they are putting the cart before the horse, and beginning at the wrong end. Half-an-hour's practical work is worth days of such study. Let them instead go out into the fields and take the first plant they meet, and compare it with what they find in their text-books, and in this way the study will become both interesting and profitable. Let them take a common buttercup or primrose, or, better still, one of the most important indigenous plants of the Pharmacopœia, the monkshood (*Aconitum Napellus*), to be found growing in almost every country garden. Most of the common indigenous plants are readily recognised by certain well-known features, and this one may well be taken as a type. It may be recognised in one of two ways, either by the flowers, or, if not in bloom, by the leaves. Examining a plant, it will be found that the former are in beautiful racemes of purple flowers, produced by the petaloid calyx, the upper sepal of which is characteristically helmet-shaped, two petals being carried on long stalks into the helmet; the latter palmate, five partite, segments wedge-shaped, and again deeply cleft into long slender parts. A young man might read this simple, but thoroughly distinctive description of this plant from book twenty times, and be none the wiser in the end, but let him go over each part of the plant and *compare it with the book*, and the whole description will become firmly fixed in his memory. Let him further, as the root is also somewhat important, examine and compare it with other roots, such as the horse-radish, for which it has sometimes been mistaken, and he will at once distinguish betwixt a tapering root and a conical root, and discover still further distinguishing characteristics of this plant. After doing this he may next exercise his pharmacy a little bit by endeavouring to extract the active principle from the root. Let him not merely in this or in any case rest content with knowing *how* it is done, but let him *do it also*, and thus he will get an intelligent understanding of the rationale of the processes. And above all, let him acquire some knowledge of the very important additions which have been made of late years to our information regarding many of the alkaloids—the aconite alkaloids for example. In this way he will not only be fitting himself to pass the examinations in a creditable manner, but he will be acquiring knowledge also which will most certainly be to his advantage in after years.

After dwelling thus fully on the other subjects we need not do more than refer to chemistry. Everything that has already been said as to the necessity for practical experience in the other departments applies equally, if even not more forcibly, to this, so that it may be thought after simply mentioning it there need be no further reiteration on the point. As it is *the* point, however, in which most fail, we must be excused again touching upon it. We have already referred to the case of a young man being presented with a chemical in a form with which he may not be familiar. There ought to be no great difficulty, it may at first sight be imagined, for a candidate who knows his chemistry, and the different group reactions by heart, testing for and finding out any metal. Neither would there be were it not for this fact, that hitherto he has been exercised simply in testing for salts presented to him, either as neutral solutions or in a neutral form, and now that he requires to make an original solution the probability is he does not in the first instance know the acid in which the metal may be soluble, or, if he does, he does not in the next place know how to proceed with an acid solution of the metal. These are no hypothetical difficulties. They meet probably the majority of candidates who present themselves at the chemistry counter, and it is not too much to assert that the majority

do not know how to overcome them. A candidate, we will say, is thus presented with a metal. He thinks he recognises it from its peculiar roseate hue, and is consequently asked to test and see if he is correct in his surmise that it is bismuth. He knows some of the reactions of bismuth, and the chances are that the very first he will fix upon will be that of adding a solution of it in nitric acid to water. He proceeds, therefore, to dissolve the metal in nitric acid, adding the acid, almost as a matter of course, in large excess. He next throws it into water, and, much to his astonishment, gets no precipitate. Probably he repeats the experiment with like success, and he at once concludes that it is not bismuth; thenceforth the chances are that all his future endeavours to find out what the metal is end in disappointment and failure. Another very fruitful source of error and failure are the tests and processes of the Pharmacopœia. Many young men know an amazing amount of chemistry from "Attfield" and other sources, but wonderfully little of Pharmacopœia chemistry. The probabilities are that they will give the process correct enough for obtaining sulphate of iron, but if asked about granulated sulphate of iron they cannot tell the reason why it is granulated by filtering the solution into spirit; they will give the sulphuretted hydrogen reaction with most metals correct enough, but if asked the reason why the Pharmacopœia directs sulphuretted hydrogen to be used as a purity test in certain cases they cannot tell; they will give the proper test for a chloride, but if asked to detect a chloride in the presence of another substance, such as iodide of potassium, they are perfectly at sea. Chemistry, it should be distinctly understood, is of little or no use to a candidate unless he can apply it in these and many other directions, and there can be no better exercise for him than to go over the characters and tests of every chemical substance of the Pharmacopœia, keeping in mind that these not only indicate sufficiently the nature of the substance, but its freedom from those adulterations with which it is most frequently combined.

A correct knowledge of these departments, it may be pointed out here, will greatly assist the candidate in another, namely, at the dispensing counter. This, of all the departments, if he has had any experience at all (and if he has not he should not present himself for examination, as it is an offence both against the spirit and the letter of the law) should be the one in which he is most at home. It is his every-day work, and should be done in his every-day method and style. Probably the strangeness of the surroundings, or a certain nervousness excusable under the circumstances, may prevent the candidates from showing their best paces. But from whatever cause, and making every allowance for these, it must be admitted that their general appearance in this department does not square with what it ought to be.

We have seen candidates bungling for an hour or an hour and a half over a prescription, which was little more than a transcript of the Pharmacopœia compound mixture of iron. Now with a mixture such as this there should have been no difficulty whatever, even although it had not been a Pharmacopœia preparation, but being this the circumstances were the less excusable. A glance should be sufficient to show the intention of the prescriber in this or in almost any other case, and the knowledge of the dispenser should supply the remainder. How can this be done, however, if the dispenser is ignorant of the nature of the substance with which he is dealing, if he knows nothing for example of its properties, its characters, its incompatibilities? This, in other words, is simply the knowledge which he is supposed to have acquired in the other departments put to practical application, and it ought to be done in such a way that if the candi-

date were on trial in an ordinary dispensing establishment, he would have the assurance of being safe from a discharge in something less than four-and-twenty hours.

In bringing these notes to a close, there is only one other point to which we would refer, viz., the conduct of the candidate under examination. Let him endeavour, if possible, to win the good opinion and confidence of the examiners. By all means, at least, let him get over the feeling that they are his sworn enemies, and, therefore, to be treated as such. There is not an examiner but would gladly pass every man who presented himself before him if consistent with his duty. On the other hand it need not be expected but that every one who has got his knowledge in a slipshod manner will be rejected, as, although there is the bare possibility of hoodwinking one examiner, it is almost hopeless to expect that all will be so blinded. Again, let him endeavour to spare the time and patience of the examiners by doing the work and answering the questions given him as smartly as he can. Some young men act apparently on the principle of doing as little and saying as little as possible, so that everything has to be dragged out of them as with a cart rope. They need not expect, however, that this will save them, for, although it is true the examiner has only a limited time to each candidate, the time is long enough to expose this the shallowness of all devices. If they are timid and nervous they may rest assured that it will be correctly ascribed to right motives, and if they are of stammering lips they may be certain that nothing will make them so eloquent as a thorough knowledge of their subjects.

THE PHARMACEUTICAL CONFERENCE AT SHEFFIELD.

THE Sheffield meeting of the British Pharmaceutical Conference attained a fair, if not a brilliant, success. The number of members attending was only exceeded at Liverpool, London, Glasgow, and Dublin. A few of the papers read were open to unfavourable criticism, but there remained a large majority of excellent merit, containing information and observations which will yield much benefit to pharmacy. The discussions were in most instances rather tame and *pro forma*, and only on the subject of the gelatinisation of tincture of kino was any real animation attained. Socially the meeting was abundantly successful. The arrangements made by the local committee filled with interesting occupation every minute which the visiting members could spare, and the displays of Sheffield industry, such as the Bessemer steel process at Brown, Bayley & Dixon's, plate-rolling and iron-smelting at Sir John Brown's, cutlery manufacture at Joseph Rodgers & Sons', and electroplating at John Round's and Walker & Hall's, excited the utmost pleasure, and the opportunity of seeing such wonderful exhibitions of skill and power was most highly appreciated, and was calculated perhaps to infuse a little modesty into the minds of those whose pigmy operations fall into such insignificance in comparison with the processes which have given to Sheffield her recognised pre-eminence.

Mr. Schacht, in his presidential address, presented a companion picture to that which he offered at Dublin last year. Then he sketched the pharmacist from his own point of view; on this occasion he delineated him as he is regarded by others. The ideal pharmacist, as Mr. Schacht painted him last year, was in truth far above the average, but he was not an impossible nor even an unhistoric personage. He was a man not marked by exceptional talents nor favoured by very exceptional opportunities, but what gave him the lofty "tone" towards the attainment of

which the president urged his hearers was a high sense of responsibility. "He felt his art to be a living thing, with a past, a present, and a future, and, though he laboured in it and lived by it, he refused to regard it as a possession of his own, but only as a trust to be held in common with others for a time, and to be transmitted to his successors, if it might be possible, in augmented value."

It was right thus to set a high mark; but it was not less necessary to show how far the majority of us are below the standard. For this purpose Mr. Schacht proceeded this year to look at the pharmacist from the outside public's point of view. He premised that such a consideration might prove an antidote of the severest kind to any conceit which the former aspect might have provoked. That exordium seemed to hint at sharp if salutary criticism. We expected to be told how far we had failed to imitate the pattern set before us last year, and consequently had missed the full public respect which ought to be ours. But Mr. Schacht's courage yielded to his courtesy. The estimate which the public and the medical profession entertain of the pharmacist was depicted with truth and humour. But the President declined to sit as judge, and with characteristic ardour he undertook the defence of the body which in some degree he officially represented. Mr. Schacht thinks that society in regarding the pharmacist as a "hireling" is unjust, and that his own ideal picture of the model pharmacist, always guided by a high sense of duty and striving for the advancement of his art, is a fairer description. We shall certainly not ourselves presume to judge; we only record.

His suggested remedy for the ignorance and indifference respecting the art of pharmacy is one which cannot be attained suddenly, but which would be a legitimate and perhaps a wise object to pursue. He considers that a better acquaintance with each other's course of study would make the medical and the pharmaceutical practitioners better friends, and would tend to raise the respect in which the latter are held. To this end he suggests the possibility of a community of instruction up to a certain point, or, more exactly, a single examination portal through which both pharmacists and doctors should pass before diverging towards their more special studies and the practice of their professions. Such a plan would not only familiarise all the branches of the medical profession with each other, but it would also lead to an economy, a uniformity, and no doubt an improvement of teaching, and that the idea may receive due consideration is all that can be expected at present.

The practical results of the Sheffield Conference were not unimportant. The chemistry of ginger has been considerably elucidated by Mr. Thresh; the development of ergot has been studied by Mr. Stoddart with the result, possibly, of explaining the capricious character of that drug; the polarimeter as an adjunct to pharmaceutical research has been brought to more general notice by Dr. Symes. Mr. Sieboid explained a ready and apparently a valuable method of testing powdered drugs by the use of chloroform, and he also showed how the presence of alcohol in chloroform in very small proportion could be detected by means of iodine. Mr. Gerrard described a more satisfactory process of extracting pilocarpine from jaborandi, the improvement consisting chiefly in the employment of ammoniated alcohol. Mr. Allen contributed some useful information respecting petroleum spirit; and Mr. Fletcher indicated a method of testing citrate of iron and quinine, not simply to show if 25 per cent. of citrate of some alkaloid be present—which is what the present official test does—but to ascertain how much of that alkaloid is really quinine. Mr. Collier's paper on the use of quillai bark as

an emulsifying agent is a very interesting one, and the remarkable properties which that tincture possesses will, no doubt, now receive a good deal of attention. Its power of almost emulsifying metallic mercury will, as was suggested, make it very useful in the manufacture of sheep-ointment, Mr. Howard contributed some remarks on aricine, a somewhat mysterious occasional alkaloid of a certain cinchona. Mr. John Moss recorded the results of his investigation of the chemistry of chaulmoogra oil. Mr. Dott replied to some American criticism of his last year's paper on amylic nitrite, and reaffirmed his previous assertion that this substance is decomposed by distillation. Mr. E. Davies suggested a means for the estimation of water in iodine; but the novelty of his proposed method was disputed in discussion. Mr. Bamford sent a paper on the gelatinisation of tincture of kino, which, though it had not involved much research, recorded an observation which was rather curious, and which was, to some extent, confirmed by the experience of others. Dr. Wright and Mr. Luff reported further on the alkaloids of the aconites, but their results had been published previously. These researches having originated with the Conference, it was natural that a summary of the latest investigations should be submitted to that body; but Dr. Flückiger's contribution had no such claim to a place in the programme. It had been already published in German, and its mere translation into English by no means made it original.

The excursion into Derbyshire, which wound up the proceedings of the Conference, was as fully enjoyed as preceding events of the same character in other localities. None of the visitors were insane enough to expect a fine day in 1879, and consequently the frequent efforts of the rain to upset the day's pleasure were totally disregarded. A number of four-horse coaches and open carriages conveyed nearly 200 ladies and gentlemen to Haddon Hall and Chatsworth, scenes of historic interest and natural charm. A most elaborate "high tea" wound up the festivities at Baslow, but many will long retain a grateful recollection of the generous assiduity with which Messrs. Maleham, Learoyd, and a few others of the Sheffield pharmacists devoted themselves to the laborious task of entertaining the members of the Conference.

Professor Atfield's resignation of the position of senior honorary secretary, which he has held ever since the foundation of the Conference, is an event of serious importance. It would be no compliment to his labours to suppose that the Conference is so slightly rooted that its prospects of permanence depend on the care and vigorous management of any one man; but it is quite correct to say that to his inexhaustible energy is due the position which the Conference has attained. He has worked at this labour of love for sixteen years as other men work at a business. He has organised all the meetings, canvassed for new members, collected subscriptions, edited the reports in the Year-book, corresponded with everybody, officially concerned, and arranged all difficulties with so much tact and good humour as to make the Conference seem almost a self-acting machine. It is this result which indicates the work of a master in any department. One can hardly grudge Professor Atfield the retirement he now asks for; and we hope the memorial of his labours, which several of the founders of the Conference suggest, will fairly indicate the gratitude which he has abundantly earned by self-denying efforts to advance the objects of the Conference—namely, the encouragement of pharmaceutical research and the promotion of good-fellowship amongst pharmacists.

INEFFICIENT EXAMINERS.

IN a particularly clever article the *Times* makes an attack on the modern system of testing everything by examination, and alleges that there is much danger of mistaking the means for the end, of making examination the be-all and the end-all of education. This is very true, and we perfectly agree with the suggestion that disastrous effects often follow the premature forcing to which boys of tender age are subjected under the influence of the competitive examination system. But the writer draws a little too strongly on his imagination when he tries to make it appear that the system necessarily tends to force teaching and examining into a narrow and mechanical groove. That this has been to a great extent the case is unfortunately true. But why? Simply because in numbers of instances the examiners have done their work in a perfunctory and mechanical manner. Most men who have gone through student life, no matter in what department, can picture the lecturer grinding out his series of tuns, and the examiner fearing to go beyond the limits of these. But given a conscientious examiner, what reason, nay, what chance is there that such a system should continue? In some schools it has become a common joke, that if you get such and such an examiner he will ask such and such a question. What law prescribes that this system should continue? There is range enough in every subject to prohibit the necessity of ever asking the same question twice over, and all that is necessary is more energy and a more lively perception of the responsibility of their position on the part of the examiners themselves. *Quis custodiet custodes?*

LEAD IN AERATED WATER FROM A NEW SOURCE.

A CORRESPONDENT of the *Lancet*, presumably a medical practitioner, and claiming to be a scientific authority, a scholar, and a philanthropist, for he signs himself "Pro Bono Publico," tells the following story:—He called recently at a public-house and purchased a "small quantity" (half a quartern probably) of brandy. It was put into an empty lemonade bottle, one of the patent stoppered variety—which, considering the value of those bottles, was a likely one for a publican to use—and P. B. P. took it home. About 4.30 A.M. he went for a drink, but when he poured his brandy into a glass and added water, the mixture became turbid. Afterwards he tried with rectified spirits of wine. The same result. He loftily adds, "I detected acetate of lead, and I understand that it is largely used in the preparation of the indiarubber bands with which these bottles are furnished." This medical braudy-drinker understands wrongly. Acetate of lead is not used in the manufacture of these indiarubber bands, nor do we understand how lead in any form can be compounded with vulcanised indiarubber without spoiling it, at least as regards colour. Whether the correspondent found lead at all, or whether he has any notion of how to find it, are open questions; but if he did it certainly did not come from the little indiarubber band in the neck of the bottle. If that band had been solid acetate of lead, it would not have yielded sufficient metal during the momentary passage of some rectified spirit over it to turn clear water to a condition resembling "tea with milk."

The *Morning Advertiser*, the organ of the publicans, a few days later published a leading article in which the statements from the *Lancet* were solemnly dished up as incontrovertible truths, and the lesson was rather too obviously drawn that aerated waters in patent stoppered bottles ought to be sternly discountenanced, while aerated waters in corked bottles, especially those manufactured by Mr.

Rawlings, should be drunk more than ever. Then Mr. Rawlings wrote over his own signature, and a discussion ensued, in which some of the large manufacturers of patent stoppered bottles took part, along with "Justitia," "Truth," "Audi Alteram Partem," "Nemo," and the regular camp-followers of the daily newspaper. The proprietors of Codd's bottle have positively declared that no lead in any form is used in the manufacture of their vulcanised indiarubber; and Messrs. Barrett & Elers, who have, perhaps, seriously cut into Mr. Rawlings' London public-house trade, have issued an advertisement, offering fifty pounds to any analytical chemist or other person who can discover lead in any shape or form in the rings of their patent stoppers. This is a brilliant opportunity for those analysts who, in the secrecy of their own laboratories, have discovered the offending metal in so many unsuspected corners.

DRUGS AND MEDICINES IN JAPAN.

A MEMORIAL has been presented to Lord Salisbury, the Secretary of State for Foreign Affairs, signed by a number of firms interested in the Japanese trade, requesting him to receive a deputation in reference to unjust restrictions placed on the entry of drugs, &c., into that country. The Japanese Government, it is stated, have, contrary to the Treaty of 1858, established at the Treaty ports officers for the examination of drugs and chemicals, pharmaceutical preparations, and patent medicines. Those examinations are made by unqualified persons; they have not only delayed the sale of the goods for periods of one or two months, causing serious loss of markets and sales at seasonable times, and led the public to believe that the English firms have dishonestly prepared impure goods and offered them for sale, but whole invoices of the best articles have been erroneously or unjustly condemned. The memorial was accompanied by certificates from Professor Atfield and others. It was signed by Messrs. Allen & Hanburys, Baiss Brothers, Burgoyne, Burbidges & Co., Corbyn, Stacey & Co., Curlings, Duff, Last & Co., Herings & Co., Howards & Sons, Short, Short & Co., &c.

Messrs. Rosengarten Sons, of Philadelphia, and McKesson & Robbins, of New York, have had their goods similarly condemned.

Lord Salisbury, in reply, says that, before receiving the deputation, he proposes to instruct her Majesty's Minister in Japan, by telegraph, to furnish a report in respect of the complaint of the memorialists, and that on receipt of Sir Harry Parkes's reply a further communication will be addressed to the memorialists on the matter.

A TURKISH PHARMACEUTICAL SOCIETY.

ON June 9 last 25 of the pharmaciens of Constantinople met at the rooms of the Society of Medicine of that city and formed a Society of Pharmacy for the Ottoman Empire. The scheme was urged with much energy in a speech by M. Pierre Apery, whose father, M. Nicolas Apery, presided at this meeting as the oldest member of the profession present. A bureau was at once formed, C. Bonkowski Elfeudi being chosen President; M. A. Matcovich, Vice-President; M. J. Zanni, General Secretary; M. P. Apery, Special Secretary; M. G. Sirnan, Treasurer; and M. Helm, Librarian. The articles of the Society were drawn up and agreed to. The annual subscription was fixed at 6 silver medjidiés—about an English guinea—with an extra half-sovereign to pay for the diploma. Besides, every member is required to contribute a work of pharmaceutical interest to the library. A member is to be expelled who, after two public warnings

from the President, after Committee reports, shall continue to seek to sow discord in the Society. What a pity the founders of the English Society did not think of this simple arrangement to secure harmony! Every candidate for membership must be a "master in pharmacy" of some recognised faculty. The Society is to exist so long as it counts 12 resident members.

On July 7 the Society met in the regular way for the first time. A summary of its proceedings will sufficiently dispose of the old-established belief that the Turk is especially remarkable for his laziness. The minutes of the previous meeting having been read and confirmed, the Secretary reported the correspondence which had taken place; the President announced that 140 members had joined the Society; the Treasurer submitted his report; the parchment for the diplomas was ordered from Paris; five business Committees were appointed and six other Committees formed on the suggestion of the President, whose duties will be to study the pharmaceutical journals and memoirs, both home and foreign, and report in turn to the Society the results of their reading. There are appointed for this work Committees for French, English, Turkish, German, Italian, and Greek journals.

M. Matcovich next read a paper advocating the limitation of pharmacies in Turkey. This was the condition in the Ottoman Empire formerly, but in 1861 the trade was made open to anyone on the recommendation of a commission composed entirely of French educated physicians. All that is now necessary is that the pharmacien shall be diplomaed, and shall keep in stock medicines according to an official list. The result, said the author, has been that out of 212 pharmacies in the capital there are 170 whose proprietors have only a capital of from 15% to 20%, or just enough to buy the official stock. The paper showed how negligent the authorities had proved themselves in preventing illegitimate competition, though severe in their inspection of pharmacies, and in the enforcement of all the laws against pharmaciens. Another paper, on salicylic acid, was read by M. Zanni, a third by M. P. Apery on some chemico-legal investigations in a supposed case of poisoning, which led to a discussion. Then the President read a report on the inspection of food and drink in the city.

Munif Effendi, the Minister of Public Instruction, had been present at the *séance* up to this point, and after expressing his great satisfaction at what he had heard, and promising support to the Society on behalf of the Government, he withdrew.

Further discussion followed on the establishment of a journal, a laboratory, and a museum; some more official business was got through, and the session terminated.

The first number of the journal of this Society has since been received. It is published in the French language, and contains some miscellaneous matters, as well as the reports from which we have compiled the preceding notes.

The utmost credit is reflected on the organising abilities of the gentlemen who have planted this Society, and their future proceedings will be watched with no little interest.

OFFICIAL INK.—A committee lately appointed by the Prussian Government to investigate the best class of inks to be employed for official purposes have just presented their report. They state that aniline inks are not suited for this purpose, because they can be easily washed away, especially by preparations of chlorine. Inks in the composition of which alizarin (Adrianople red) is employed can be obliterated less easily. But they are of opinion that the best of all is that made from gall nuts, and recommend that it shall be used for official purposes and for all the documents the preservation of which is of importance.

THE BRITISH ASSOCIATION.

THE Sheffield meeting of the British Association does not seem to have been so successful in point of attendance as was anticipated from its central position and from its localisation of practical science. The total number of tickets sold reached 1,404. This was nearly 200 more than at Plymouth in 1877, but at Dublin in 1878 the number of 2,578 was reached, and at Glasgow in 1876, 2,652 attended. The officials of this wandering society know very well that the place to secure a good meeting must be a point which will serve as the start of a popular autumn tour.

The President's address was a really thorough and artistic composition, presenting a careful review of the studies of the past 40 years in regard to the origin and development of life. Dr. Allman explains to those who will take the trouble to study his address what are the steps by which biological science has arrived at such extended views of the nature of life, what are the problems which still await solution, and what are the limits of this study, and the characteristics which distinguish the phenomena of mere life from those of thought and consciousness.

There is a substance described by Huxley as "the physical basis of life," which was first observed by Dujardin as forming the origin of animal bodies, and was afterwards proved by Max Schultze to exist in identical condition in vegetables. In the first instance it was called Sarcodite, in the second Protoplasm. The latter name has since displaced the other, and it is now recognised as the material on which all the vast and varying experiments of living nature are performed. It is now, to biologists, "a tangible and visible reality, which the chemist may analyse in his laboratory, the biologist scrutinise beneath his microscope and his dissecting needle. The chemical composition of protoplasm is very complex, and has not been exactly determined. It may, however, be stated that protoplasm is essentially a combination of albuminoid bodies, and that its principal elements are, therefore, oxygen, carbon, hydrogen, and nitrogen. In its typical state it presents the condition of a semi-fluid substance—a tenacious, glairy liquid, with a consistence somewhat like that of the white of an unboiled egg." It differs from mere matter, however, by movements in itself which are not explainable by gravitation, and are sometimes directly opposed to gravitation. Irritability is its special characteristic according to Dr. Allman. Some years ago a peculiar sort of slime which was found at the bottom of the sea was proved by Huxley and Haeckel to consist entirely of protoplasm, and they called the slime *Bathybius*. Haeckel jumped straight at the conclusion that it was formed there by spontaneous generation. Subsequent investigations, however, have not confirmed the original opinions respecting *Bathybius*, but however that discussion may end there is no doubt that in that or a similar form we have the most primitive, structureless, organless form of life-endowed substance. Above that we find the *Protanæba*, little masses of protoplasm found in waters, but differing from *Bathybius* by having a pulsating cavity; next we have the *Amæba*, in which a nucleus or cell is evident. To nourish itself this curious body sends out a stream of protoplasm, and absorbs living matter which surrounds; to reproduce, its nucleus separates into two, and the *amæba* divides. More complex bodies grow by the accumulation of cells, and all cells, many millions sometimes in a single organism, have their special function to perform.

Professor Allman then proceeded to trace the formation of cells in plants and animals, and to point out how in both kingdoms of nature the life principle was affected in the same way by the same agents, such as chloroform and ether, as shown by the experiments of Claude Bernard. Studies of the kind which Dr. Allman summarises have often led to a materialistic tendency of thought. "With much fineness and delicacy of analysis, however, he in his concluding sentences implies, though he does not say it, that, truly considered, they have an opposite effect. It is chemically the same protoplasm, he says, which in one case develops into a jelly-fish, in another case develops into a man—a Shakespeare, it may be. There is a fundamental difference somewhere which we cannot trace. When, however, we say that life is a property of protoplasm, we assert as much as we are justified in doing. Here we stand upon the boundary between

life in its proper conception, as a group of phenomena having irritability as their common bond, and that other and higher group of phenomena which we designate as consciousness or thought, and which, however intimately connected with those of life, are yet essentially distinct from them. When a thought passes through the mind, it is associated, as we have now abundant reason for believing, with some change in the protoplasm of the cerebral cells. That consciousness is never manifested except in the presence of cerebral matter, or of something like it, there cannot be a question; but this is a very different thing from its being a property of such matter in the sense in which polarity is a property of the magnet, or irritability of protoplasm. The generation of the rays which lie invisible beyond the violet in the spectrum of the sun cannot be regarded as a property of the medium which by changing their refrangibility can alone render them apparent. There is a special charm in those broad generalisations which would refer many very different phenomena to a common source. But in this very charm there is undoubtedly a danger, and we must be all the more careful lest it should exert an influence in arresting the progress of truth, just as at an earlier period traditional beliefs exerted an authority from which the mind but slowly and with difficulty succeeded in emancipating itself."

Professor Huxley made a somewhat weak attempt to be funny after the President's address by speaking of his young friend Bathybius as of a youth of great promise who had hardly turned out as well as had been expected.

Among the addresses of presidents of sections the most popular were those of Professor St. George Mivart in the Biological and of Mr. Clements R. Markham in the Geographical sections.

Professor Mivart endeavoured to render justice to Buffon. Among other quotations from the great naturalist he gave the following to show how nearly he had anticipated the theories of the present day. In his chapter on the degeneration of animals he sums up, saying, "After comparing all the animals, and arranging them each in their own group, we shall find that the 200 kinds described here may be reduced to a small number of original forms, whence it may be all the rest have issued." The Professor further discussed the question suggested by Buffon whether the mental powers of man were of a radically distinct kind from those of animals or whether they only differed in degree. He himself evidently inclined to the former theory. Apes (like dogs and cats) warm themselves with pleasure at deserted fires; yet, though they see wood burning and other wood lying by, though they have arms and hands as we have and the same sentient faculties, they have never been recorded to have added fuel to maintain their comfort. Swallows will continue to build on a house which they see has begun to be pulled down, and no animal can be shown to have made use of antecedent experience to intentionally improve upon the past. If, on the other hand, animals were capable of deliberately acting in concert, the effects would soon make themselves known to us so forcibly as to prevent the possibility of mistake.

Mr. Markham aimed to give a summary of the objects of geographers. It appears that we have yet but an imperfect geographical knowledge of even civilised countries, while by far the largest portion of the earth's surface is as yet inadequately surveyed. The Geographical Society now provides instruction for any persons about to visit unknown or little known countries to enable them to observe usefully. Speaking of the physical changes to which the earth's surface is subject, Mr. Markham gave the following illustration:—The student of history reads of the great sea fight which King Edward III. fought with the French off Sluys; how, in those days, the merchant vessels came up to the walls of that flourishing seaport by every tide; and how, a century later, a Portuguese fleet conveyed Isabella from Lisbon, and an English fleet brought Margaret of York from the Thames to marry successive Dukes of Burgundy at the port of Sluys. In our own time if a modern traveller drives 12 miles out of Bruges across the Dutch frontier, he will find a small agricultural town surrounded by cornfields and meadows and clumps of trees, whence the sea is not in sight from the top of the town-hall steeple. This is Sluys.

Professor Dewar delivered the address in chemistry, and discussed chiefly the recent improvements effected in the

manufacture of steel, by Messrs. Thomas and Gilchrist, who had overcome the chief difficulty of the Bessemer process, which did not eliminate phosphorus from ore. Consequently, as the presence of phosphorus in steel is deleterious, only very pure ores are used in that process. Messrs. Thomas and Gilchrist substitute a basic lining for the ordinary silicious lining of the converter, and add lime to the charge during the "blow," and so oxidise nearly all the phosphorus. He also referred to the improved method of obtaining soda by the ammonia process, which was as yet only employed by one firm in this country.

Professor Williamson, in proposing a vote of thanks to Professor Dewar, said that without desiring to undervalue the results obtained by Messrs. Thomas and Gilchrist, it was, he considered, only a finishing-off of the results obtained by Mr. Lowthian Bell, M.P.

In the section of Mathematics and Physical Science, Mr. Stoney, secretary to the Queen's University, Ireland, claimed that mathematics and physical science required the combination of both the observing and reasoning powers of the mind. He illustrated his remarks by a narrative of the discovery of the sun's spectrum by Kirchhoff, and concluded by bemoaning the approaching sacrifice of his own university to ecclesiasticism. The object of this introduction of personal matters did not seem to have much relevancy, unless it was intended to suggest a useful secretary for the new Victoria University for the North of England.

Professor Duncan, as president of the Geological Section, gave a general view of the geology of England, and in the section of Mechanical Science Mr. J. Robinson, who is also president of the Institute of Mechanical Engineers, discoursed on the "Development of the Use of Steel during the last Forty Years, considered in its Mechanical and Economic Aspects." He declared that never in the history of metallurgy, from the days of Tubal Cain downwards, had there been such rapid progress made as had occurred in the present age in respect to steel.

Another presidential address which attracted considerable attention, especially in medical circles, was that of Dr. Pye Smith in the sub-section of Anatomy and Physiology. He commenced by deprecating any appeal for Government assistance in the prosecution of scientific research, and said he would rather be indefinitely dependent on Germany than give up the unofficial zeal which had made England what she is. But he thought that the Government might at least show a benevolent neutrality towards men of science. He referred to the legislation on vivisection. If experiments on living animals were forbidden by the Ten Commandments or by Mr. Matthew Arnold, of course they must be given up; but in that case the science of physiology must come to a stop, and the farmer, the cattle breeder, and the physician must be content with such knowledge or such ignorance as he at present possesses. He claimed that at least equal consideration should be shown to science as to sport, and he said that the opposition to vivisection was due partly to ignorance, partly to a vulgar dislike for what was obviously and immediately useful, and partly to an aversion to science generally, induced, perhaps, to some extent by false science, and by the arrogance of some of the true science. Most of the experiments in the laboratory were rendered painless, and in cases where it was not so, pain was inflicted with regret, and with a sense of duty, just as a country surgeon might, in a case of life or death, ride his horse beyond the limit of his endurance. Professor Mivart, in proposing a vote of thanks to Dr. Pye Smith for his address, argued that suffering was mainly an intellectual feeling, and that animals who neither anticipated nor recollected it suffered less than we should.

Dr. E. B. Tylor, in the department of Anthropology, discussed the "Antiquity of Man," indicating his opinion that a very vast length of time must be allowed for prehistoric eras to explain the developments of race, language, and culture.

In the Economical Section, an address by Mr. Shaw-Lefevre, who was not present on account of the death of his father, was read. It was an able discussion on the present agricultural crisis in the country.

Our space compels us to postpone any reference to the papers read at the meeting. It may be mentioned, however, that in some of the sections, and not least in the Chemical, complaints were rather freely made that matter which had

already been published was brought forward, and occupied a good deal of valuable time.

The next meeting will commence at Swansea on August 25, Professor Ramsay being the President-elect. The year following will be the 50th meeting of the Association, and a warm invitation from York for that year was unanimously accepted. The first meeting was held in that city. An invitation from Leicester for 1882 was considered, but will not be settled until next year.

OUTSIDE OPINIONS.

OPIUM IN THE NURSERY.—A correspondent of the *Daily Telegraph*, writing under the signature "A Mother who has suffered from Opium in the Nursery," asks: "Can no legislation restrict the extensive sale of opium, in the guise of 'Soothing Syrups,' and thus check to some extent the most pernicious practice, too common amongst nurses, young and old, of secretly administering opium to infants entrusted to their care? The low, irritative febrile state thus produced is so similar to that resulting from errors in diet that, even when fatal convulsions follow, the real cause of illness may remain unsuspected by a skilful physician. The heavy, death-like sleep, accompanied by convulsive twitchings, the scorched, swollen eyelids, the bluish pallor of countenance and growing heaviness of expression, has told its own tale to one watchful mother just in time to save her child from death, or from a state of idiocy far worse, and the contrast between this and the glow of health and intelligence in the little rescued one leads to earnest entreaties for the ever-powerful advocacy of the *Daily Telegraph* in favour of the prohibition of such indiscriminate sale of opium."

FREE TRADE IN QUININE.—One half of the wise lawmakers of the last Congress (says the protectionist *Philadelphia Bulletin*) could not tell quinine from Glauber's salts. We doubt not the leaders believed, as a direct result of their hasty legislation, that quinine would be reduced in price and made better in quality, and that the measure would at once be popular with the people. When both of these propositions fail and quinine goes up, as it has, and the quality of the imported article grows poorer, as it will, the mistake will be made plain even to the ordinary Congressman. Quinine pure is cheap at \$4 per ounce, when compared with a spurious article at one-fourth that price. Every medical man in the United States knows that the article of quinine made in this country was pure and always reliable, while the practitioner is constantly deceived by imported drugs, and the sick made to suffer. No complaint was ever made of this remedy—"a Samson in disease"—when it bore the trade-mark of "Powers & Weightman."

THE "TIMES" ON EXAMINATIONS.—To our thinking, examinations, so far from being a good in themselves, can hardly be placed higher than the category of necessary evils. They are a burden to the examiner and to the teacher, exactly in proportion as each is efficient and conscientious, and they are very far from being an unalloyed benefit even to the examinee. But they are not the less in many cases necessary; they are at least a rough test of merit, capacity, and attainment, and, therefore, where these have to be tested for any specific purpose, it is hardly possible to dispense with examination altogether. But to admit this much is very far from saying that examinations should be made, what they are fast becoming, the be-all and the end-all of educational processes. From the tender age of ten or eleven to that of manhood and upwards nearly every boy of promising parts in this country lives with the constant fear of examinations before his eyes. If he is more than usually successful, at the end of the process he is likely to enjoy for the next few years, or, indeed, as long as he chooses, the distinguished privilege of examining his juniors in their turn. Thus the examination fever spreads far and wide. It spares neither age nor sex; for women, with singular perversity, have claimed as a privilege what boys and men alike regard with aversion. It has long ago pervaded education, and its contagion is now beginning to infect the whole range of modern letters. Literature, ancient and modern, is regarded as so much material for examination to be reproduced in the form best calculated to

win marks in a competition. History is cut up into "periods" and "epochs," and then reduced into summaries, so that whoso runs may read or teach, examine or be examined. The old Universities, which once could boast of a learned press, and still occasionally publish works not unworthy of English scholarship, devote their chief literary energies to the publication of manuals required in the various examinations they have undertaken to conduct. The work is excellently done, no doubt, though it is hardly of a kind which befits the dignity of an academical press. But the examination spirit is rampant, and the Universities are forced to yield to it. The pity of it is that they take to the task so kindly, and seem so entirely contented with it. The evil of all this is unquestionably great and growing. We need not dwell on the disastrous effects, well known to schoolmasters and college tutors, of the premature forcing for the purpose of competitive examination to which so many boys of tender years are now submitted in public schools. It is rather to the general effects of the modern tendency to make examination the sole test and crown of all processes of education that we wish to draw attention. This tendency entirely distorts every rational view of what education should be. It makes of the pupil a mere racer, and one who contends for heavy pecuniary stakes. It makes of the teacher a trainer whose whole prosperity depends, not on his power of imparting sound knowledge and drawing out the natural capacities of the mind, but on his skill in preparing his pupils for a particular competition. It makes of the examiner a judge, not of mental capacity and sound information generally, but of those qualities alone which are readily estimated in marks. In addition to all this, the system tends inevitably to force teaching and examining alike into a narrow and mechanical groove. Even if a particular teacher has a special taste and regard for some subject out of the ordinary range of the examination for which he is preparing his pupils, he dare not lead them in the direction in which he would probably do them most good, for fear they should fail to get credit for their work in the coming ordeal, on which their whole success in life may depend. He is forced to scan with anxious scrutiny the line that the examination has previously taken, in the confidence, very rarely misplaced, that it will take the same line again. For the examiner knows that he, too, must not go beyond certain well-understood limits. If he does, he will be regarded as crotchety, unfair, and pedantic. Every experienced teacher knows to his cost how the attempt to lead his pupils towards some collateral line of study not directly recognised in an examination is frustrated at once by their refusal to take any interest in subjects that will not "pay." Every examiner knows that the insertion in his papers of a question lying somewhat out of the recognised range and groove is simply so much waste of time and labour. Hence, under the influence of examinations, the treatment of every subject, great and small, is divided, by an impassable barrier, into the dark and boundless range of the neglected and the unknown, which the teacher must leave unnoticed and the examiner dares not explore, and the narrow field, brilliantly illuminated and minutely surveyed, which the pupil is taught to regard as alone worthy of notice. Even thus we have not exhausted the evil effects of thus substituting examination for education. The whole system gives the successful competitors an exaggerated sense of the importance of the victories they have won. It unduly stimulates their earlier efforts, while it paralyzes their later and more mature energies. A high wrangler or a first-class man thinks that the battle of life is won. He has learnt all that he can learn, has done all that he needs to do. He despises knowledge which lies outside the examination range as musty, pedantic, and unprofitable. He thinks meanly of men who have not been examined so often or so successfully as himself. He owes all that he is, and has, and knows, to having been examined; he believes in the process, and he aims at nothing higher than being in his turn an examiner himself. Then, indeed, his fate is sealed; he might have been a student, a scholar, or a philosopher if he had not been taught to look at all knowledge through the distorting medium of examinations; he might even have succeeded in life, in spite of early obstacles and mischievous training, if he had not been led to believe that success was already won at its outset.



AND

Literary Notes.

Chemical Denudation in Relation to Geological Time. By T. Mellard Reade. London: David Bogue. 1879. Pp. 61.

THREE papers have been reprinted in this thin volume. The age of the earth is the subject, which has been approached by mathematical processes from a fresh standpoint in each.

The argument of the first paper is briefly this. The salt of the sea has all been dissolved by rain and carried by rivers from the land, and has accumulated in the oceans by the evaporation of the solvent. The ocean is the mother liquor of all the rain and rivers of the world. The proportion of dissolved matter contained in the water of upland rivers, where agriculture and towns have not affected it, is tolerably regular. In England and Wales the rain washes from each square mile of surface 143.5 tons of saline matters in a year; this is 8,370,000 tons a year for the whole surface; and at this rate the surface of the land would be lowered .093 of an inch in a century. Taking 100 tons as the weight of the saline matter dissolved by rain for each square mile of country, 50 tons would be carbonate of lime, 20 tons sulphate of lime, 7 silica, 8 chloride of sodium, and the remainder less important substances. The area of the land surface of the world is taken at 51 millions of English square miles.

As an average of analyses, and in round numbers, there are in the ocean 1,222 billions of tons of carbonate of lime and magnesia, or sufficient to cover the whole land surface 12.9 feet thick. Of sulphate of lime and magnesia there are 25,369 billions of tons, sufficient to form a covering 267.6 feet thick. It would take at least 25 millions of years to accumulate the sulphates, but only 480 thousand years to accumulate the carbonates. But carbonate of lime is constantly being removed by many kinds of marine animals. The chlorides in the ocean, chiefly sodium chloride—81,295 billions of tons—would cover the land 914.9 feet deep; and at the present rate they could not have accumulated in less than 200 millions of years.

The second paper deals with some of the results of the Challenger Expedition. It is calculated that the chalky mud containing much water, which is found on the sea bottoms, is deposited at not more than a foot in 20,000 years; while the red mud, found in the deeper sea basins, takes probably ten times as long.

The third paper inquires how long it must have taken separate original rocks from the framework of the globe, the beds of limestone and other forms of calcium carbonate which are known to exist in the sedimentary crust of the earth. It is calculated that at least 600 millions of years are required for the process, which must also have been, in many cases, done over and over again.

The papers present a new view of an interesting subject, and the argument, of which we have given a very bare skeleton, should be read for its force to be appreciated.

Philosophy, Historical and Critical. By André Lefèvre. Translated, with an Introduction, by A. H. Keane, B.A. London: Chapman & Hall. Pp. xxiv., 598.

THE latest volume of the "Library of Contemporary Science" is a "glorification" of Materialism. The second part of the work, which is really its key, is an exposition of the universe, including man's relation to his surroundings. The fifty or sixty elements make up the universe. Motion, which is the manner of being of matter, is at once the condition and effect of all atomic or molecular combinations. Life is the result of the motion of complex combinations of molecules; it is a property of cells. Sensation is the effect of the friction of cells, caused by impacts from without and from internal movements. Will is the choice of pleasure or the attempt to avoid pain. Intellect or Thought is a special form of activity of a special form of matter found in certain

parts of the brain. Conscience is an inherited tendency, the result of accumulated experiences of the good or evil effects of certain actions. There is nothing in the universe but matter: life, thought, will, are mere conditional effects, inseparable from their conditions. All ideas of a Creator, a First Cause, a Moral Governor, are mere delusions, insane ravings—the result of man's ineradicable tendency to personify his surroundings. There is and can be no God; and all men who believe there is a God are necessarily fools. Such is the author's theory; and from this standpoint he passes in review, in the first part of his book, the philosophies which have been current in all times. He admits that the spiritualistic or dualistic philosophy, which asserts that matter and spirit make up the universe, is as ancient as the materialistic, which denies all but matter. He admits that both are still accepted; but throughout his "History of Philosophy," all philosophers who approach materialism are treated with sympathetic attention, while those who assert the existence of a Creator, or of anything we now include in the word God, are, as far as possible, curtly dismissed, or held up to scorn and ridicule. The book is, from the very nature of the subject, a vast *petitio principii*—an argument in a circle. On every page the author boldly asserts things which would prove his position, but which are denied by at least half the philosophic world. Axioms, or intuitions, he says, are merely the result of inherited experiences; we cannot be sure that two and two are not five, or that a part is not greater than the whole; we can only be sure that we have never known them to be so. And in neglecting all intuitional truth the author, of course, leaves his philosophy incomplete.

As a forcible, consistent, and comprehensive exposition of materialism, the book deserves a welcome, and will, doubtless, be valuable to many. The "Introduction" by the translator, Mr. Keane, indicates very neatly and effectively the faulty links in the author's argument—the places where imagination bridges the abysses left by reason. And although the author's contempt for all who do not accept his opinions is very offensive, yet the very antagonism it excites makes the book interesting. One point calls for emphatic condemnation. Neither author, translator, nor publishers have provided an index: they have reduced the value of the book one-half. A mere index of names would have made this a very handy book of reference. A reader in search of the opinions of any of the philosophers, if he is uncertain of the era, had better look anywhere than here: he will but waste his time in turning the uncertain pages.

Natural Mineral Waters: Their Properties and Uses. London: Ingram & Royle, 119 Queen Victoria Street.

THIS is a pamphlet of 48 pages, published, no doubt, with commercial intentions, but it is one which will be found most useful in almost every pharmacy. The chemist cannot be expected to keep in stock every kind of natural mineral water, but he should be able to give some information respecting any that may be asked about, and this pamphlet will provide him with the means of doing so. It contains the origin, doses, properties, and uses of about a hundred kinds of mineral waters, and in about half of these the full analysis is likewise given. The pamphlet contains, further, some medical opinions respecting mineral waters, especially a lecture by Sir Henry Thompson on "Calculous Diseases." With a price-list and this treatise the pharmacist would be well set up in the trade, and we believe that the publishers are quite willing to supply any chemist with both.

Prior's Popular Names of British Plants. Third edition. Pp. xxviii., 292. Norgate. 1879.

WHEN Dr. R. C. A. Prior's book first appeared in 1863 it occupied a field which was entirely uncultivated; and the third edition, which has just appeared, is a convincing proof of the soundness of his work.

It opened up an entirely new field abounding in interesting facts, and while some have attempted to do original work at his side, his harvest has been drawn on for a host of magazine articles and presidential addresses to scientific gossip clubs.

The book is a popular etymological dictionary of the common English names of plants. It adopts the dogmatic tone and chary use of references which is happily becoming antiquated in such works, but the etymologies proposed are

in most cases very sound. The present edition contains two or three pages more than the last. The index is faulty, for none of the additions seem to have been registered; and we must complain of the very incomplete list of "works referred to." In the very first page four books are mentioned, only one of which is in the list. This is an exceptionally bad instance, but a large proportion of the references are too curt to be of use to anyone not familiar with the books referred to. These are all the faults we can find in the general plan of the book.

One of the additions is an etymology of the puzzling word "avens," a name of the common *Geum urbanum*, L. It is well known that in old MSS. the letters *r* and *n* are interchangeable, and *u* and *n* were written alike. Prior quotes mediæval Latin forms of the word *arenæa*, *anancæa*, *anantia*, *enantica*, &c.; and as this plant was supposed to ward off the devil and evil spirits, venomous serpents and wild beasts, it is probable, he suggests, that the Greek *enantia*, in the sense of "antidote," may be the original and proper form of the word.

Under the word "beech" no notice is taken of Max Müller's interesting essay, published in the "Lectures on the Science of Language," in which the change of meaning from the Greek *phēgos*, an oak, to the Latin *fagus*, Gothic *boka*, and English *beech* is interestingly elucidated.

Bergamot is explained as meaning in English the *Monarda fistulosa*. But the curious etymology of the word is not given. A variety of pear, highly esteemed in Turkey, was called there *beg armoudy*, duke's pear—*poire de seigneur*. This was imported to Italy certainly before the middle of the seventeenth century, and its name seems to have been transferred to one of the orange tribe, from some similarity in flavour or appearance. At any rate, in 1693 essence of bergamot was mentioned in a book on perfumery ("Pharmacographia," page 169), and in 1688, in the private list of a druggist of Giessen, Germany (Flückiger, "Documente zur Geschichte der Pharmacie"). From the bergamot orange the name has travelled to *Monarda fistulosa* and *Mentha citrata*, two of the *Labiata*. There is a town named Bergamo in Italy, and it has been often suggested that the pear got its name from growing near this town; another etymology is proposed in Pomet ("Hist. des Drogues"). The above derivation was first established by Pihan ("Diet. Etym. des Mots de la langue Française dérivés de l'Arabe, Persan, ou Turc," Paris, 1866), and is too sound to be shaken.

Sal prunella is a name which must have puzzled many a druggist. *Brown wort* is thus explained. A plant is "so called from the brown colour of its flower-spikes and its being supposed to cure the disease called in German *die braune*, a kind of quinsy—the brunella, or, as it is now spelt, with a "p," *Prunella vulgaris*, L."

To the proposed etymologies of *Butcher's broom* we may add another, or may, at least, record a fact. The branches were formerly used in butchers' shops in Essex for slapping and driving away the flies, and the popular belief is that this is the origin of the name. We have also seen the branches used in London for sprinkling water on floors before they are swept.

Carrageen-moss is explained as "a seaweed, so called from an Irish word that means 'a little rock,' the name of some place in Ireland where it was first collected for sale." No authority for the statement is given, and in the "Pharmacographia," page 679, note 3, we read: "Carrageen, in Irish, signifies 'moss of the rock.' We learn from an Irish scholar that it would be more correctly written *carraigéen*." The affix "moss" we have never seen at the end of the name except here.

Curse is given as an old spelling of cress. It is not mentioned here that the proverb, "It's not worth a curse off a common," which has been vulgarised till it is unquotable, was originally, "It's not worth a cress," &c. One of the oddest names ever bestowed on a plant is that of "Close sciences." Prior gives the derivation accurately, but Britten and Holland quote the original authority. "Parkinson, in his 'Theatrum Botanicum' (1640), p. 628, says, 'In the West parts of this island, from whence I had the double kinds, as I am informed, they call it double sciney and the single *close sciney*, but Gerard saith *close sciences*.'" *Sciney* is doubtless a corruption of *damascena*, the old specific name of the plant, *Hesperis matronalis*. The present specific name has, by-the-

bye, originated from another mistaken explanation of *damascena*, given neatly by Prior. The plant is called *dame's violet* by Gerard. Formerly the names "viola" and "violet" were applied to cruciferous plants, such as the wallflower, more often than to the plants now called violets, and the *Hesperis* was; the "*Viola Damascena*, from Damasens in Syria; French, *Violette de Damas*, misunderstood for *violette des dames*," hence *dame's violet* and *Hesperis matronalis*.

We might extend our notice indefinitely, but will end by recommending everyone interested in botany to get this book and read it carefully. We are sure it will be found entertaining.

International Medical Pharmaceutical Dictionary, in Three Languages: French, English, and German. Compiled for the use of Physicians and Chemists in intercourse with Foreigners. By George Hermann Moeller, Chemist, Professor of Modern Languages, &c. Munich: Jul. Grubert. 1879.

THE words and phrases in this dictionary are classed according to subject, so that their connection may make them easier to remember. The French, English, and German equivalents are given in parallel columns, and the Latin names of drugs, chemicals, and plants are added in another. There are five principal headings—Materia Medica, Man and his Diseases, Pharmacy, Natural Sciences, and Supplement. The sub-classes include all technical subjects which a pharmacist or physician is likely to talk about with a foreign patient—the names of bodily symptoms, of different classes of medicines, phrases for giving "directions for use," &c.

The author is a German; he mentions 23 works (excluding those blind guides—dictionaries of more than one language), to which he is indebted for help in compiling this work. Of these, eighteen are French, three English, and two German. The English works are Beasley's "Pocket Formulary," Thomson's "Organic Chemistry," published in 1838, and Webster's Dictionary. The author has evidently much less acquaintance with English than with French or German, and of the English words and phrases given, though few would not be understood, many would never be used by Englishmen. Thus on the page that opens first, "turpentine of larch" is given as one English name of Venice turpentine; "goat's-thorn gum" and "tragacantha" are the only English equivalents of the Latin *tragacantha*, and gum dragon is omitted; and few English pharmacists would know what is meant by flax-weed ointment or unguentum linariae. This ointment is never used in England, and the best-known English name for the *Linaria* is toad-flax. On the next page (39) on which only 10 expressions are given, *poudre de vanille* is said to be the English equivalent of vanilla saccharata, *sweed wine* of vinum aromaticum, *peptic wine* of vinum pepsini, *cyanure of zinc* for zincum cyanatum (i.e., zinci cyanidum) and *ferro-prussiate of zinc* (!) for zincum ferrocyanatum. On another page the expression "red cheeks (a sign of consumption)" hardly flatters or reassures our English ladies, and not every one would see at once that the hectic flush is meant.

The work is evidently intended chiefly for Germans; at the end of the work is placed an index of German words referring to the page on which the foreign equivalents will be found. But we think that Englishmen are less likely to be misled by it than either French or Germans, and believe that it is likely to be very useful, especially to the dwellers in large centres of population. As we received it, the work has only a paper cover.

IT IS STATED that the long-promised "Introductory Primer" to Macmillan's series of Science Primers, by Professor Huxley, is at last in the press, and will be shortly published.

MESSRS. CASSELL, PETER & GALPIN have sent us samples of their almanacs for 1880, which are now ready. There are four or five varieties, and most of them are illustrated. All are filled with interesting scraps of literature. These almanacs are supplied to tradesmen in sheets, so that a cover with the tradesman's name and announcements respecting his business may be stitched together, and the whole distributed. Messrs. Cassell undertake not to supply two editions of the same almanac in one town.

THE "INDO-BRITISH OPIUM TRADE AND ITS EFFECT; A RECESS STUDY."—We have received from Messrs. Nisbet & Co. a small volume of a hundred pages bearing the above title. The author is Dr. Christlieb, the well-known professor of theology at Bonn, Prussia; the translator is Mr. D. B. Croom, M.A. The subject is treated from the religious point of view, putting the work outside the sphere of this journal; but we may say that it is a very forcible statement of the history and effects of the opium traffic with China, and will doubtless help to rouse Englishmen to a sense of their responsibility in this matter. Pharmacists will find here new and startling facts in the history of one of the most important drugs.

A PAMPHLET has just been published by Messrs. Newbery & Sons, entitled "How to Introduce Proprietary Medicines and Other Goods." It will readily be supposed that when a firm with the experience which Messrs. Newbery have gained offer advice on such a subject as the one we have named, it cannot be otherwise than valuable. Advertising is naturally the chief subject dealt with, and in this section we have to acknowledge with thanks the complimentary manner in which this journal is referred to. The suggestions given are shrewd, and are often illustrated by instances from the experience of the writers. We can only regret that the pamphlet is not longer. The writer has evidently sought to condense rather than to enlarge, but we are certain that interested readers would have welcomed a much longer treatise in the same style, telling them how money is to be won. The pamphlet is priced at a shilling.

Botany.

A GIGANTIC ARUM.

Amorphophallus Titanum, Bec.

In November last we noticed a new vegetable Brobdingnag (THE CHEMIST AND DRUGGIST, 1878, p. 496), which had been discovered in Sumatra by Signor Odoardo Beccari. Further details have been published in the *Bulletino della Società Toscana di Orticultura*, from a translation of which we take the following.

The plant belongs to the family Aroideæ; its flowers far surpass in size all previously known. Beccari places it between *Conophallus* and *Amorphophallus*, and names it *Amorphophallus Titanum*, an epithet to which it seems fully entitled. The root-stock of one specimen he dug up measured 1.40 mètre in circumference, and two men were scarcely able to move it from the place. From the root springs a single leaf, which differs only in size from those of other species of the genus, though how much in size! The leaf-stalk is 90 centimètres in circumference at the base; it tapers a little upwards, and reaches a height of 3½ mètres; the surface is smooth, green, and covered with numerous small circular spots. The leaf-stalk divides above into three branches as large as a man's thigh-bone, which divide again, each having a leaf-blade 3.10 mètres long. The whole leaf covers a surface 15 mètres (nearly 50 feet) in circumference, an area of at least 200 square feet.

The stem of a specimen in fruit was the same size as the leaf-stalk mentioned above. The spadix was cylindrical, set with olive-shaped fruits, 35 to 40 millimètres long, and 33 millimètres in diameter, of the colour of minium or cinnamon, each containing two seeds.

In appearance and colour the flower is much like that of *A. campanulatus*; the form of the spike is almost exactly the same. The flower of *A. campanulatus* was considered enormous; what, then, must be said of the flower of *A. Titanum*, which is ten times as large?

The specimen examined by Beccari had a spadix 1.75 mètre long (the height of a middle-sized man), from the base of the spathe to the end of the barren portion, but not reckoning the stalk. The stalk was neither thick nor high in proportion to the single leaf-stalk. The greatest diameter of the spathe was 83 centimètres, its depth about 70 centimètres; it was campanulate, with open, coarsely-toothed, and closely-cripsed margin. Inside at the base it was pale green, and towards the margin dull purple, in colour.

Medical Cleanings.

FOR BOILS.—

	Grains
Sulphide of calcium	1
Sugar of milk	10

Divide into ten powders, take one every three hours.

Canadian Medical Journal.

ABNORMAL APPETITE.—Dr. John Fulton, of Melbourne, records in the *Australian Medical Journal* a singular case of a girl who, at six years of age, discovered a singular taste for feeding on slugs, beetles, cockroaches, spiders, and other repulsive insects. She had been carefully brought up; was a member of a family of 13 children, in no one of whom did a similar *penchant* betray itself; there was no trace of insanity in any known relatives of the family on either side the house. The girl was remarkable for an extremely amiable disposition; was perhaps below medium in intellect, save on the side of humour, in which an extraordinary aptitude for mimicry and repartee was displayed. She was of slight but perfect physique, and her appetite became perfectly normal about the age of 14.

MEDICAL HONOUR.—The *Philadelphia Medical and Surgical Reporter* comments on the case at Manchester recently reported by ourselves, in which a judge characterised a percentage arrangement between a doctor and a dentist as "monstrous," and concludes thus:—Physicians have much to say of the impropriety of druggists prescribing for the sick; of their repeating prescriptions without authority; of their putting up and selling proprietary medicines; of their vending adulterated medicines; and various other tricks of the trade; but to our minds the druggists could often make strong points against the greed of the physicians to obtain percentages, the frequent unnecessary prescribing of compounds, their dispensing and sale of medicines in their offices, and other practices not more praiseworthy. Let us try to remove this beam from our own eye before we become pressingly anxious to extract the mote from the optic of the druggist.

Marriages.

GLAISYER—GLAISYER.—On September 12, at Brighton, Henry Glaisyer, solicitor, Birmingham, to Edith, daughter of Thomas Glaisyer, Brighton.

INCE—EATON.—On the 11th inst., at the parish church of Alvechurch, Worcestershire, by the Right Rev. the Lord Bishop of Oxford, assisted by the Rev. J. P. Lightfoot, D.D., Rector of Exeter College Oxford, the Rev. William Ince, D.D., Regius Professor of Divinity and Canon of Christ Church, Oxford, to Mary Anne, youngest daughter of the late John Rusher Eaton, Esq., of the War Office.

MORSON—PRESTON. HALL—PRESTON.—On September 3, at the Free Christian Church, Clarence Road, N.W., by the Rev. Charles Voysey, B.A., and Moncure D. Conway, M.A., Thomas Pierre, eldest son of Thomas Morson, Esq., of Southampton Row, Russell Square, and Hornsey, to Florence, eldest daughter of Alfred Preston, Esq., Fellows Road, South Hampstead. At the same time and place, Walter, only surviving son of the late John Hall, Esq., of Clapham, to Annic Gertrude, second daughter of Alfred Preston, Esq.

Obituary.

EYRE.—On July 13, 1879, Mr. Thomas Eyre, chemist and druggist, Hayfield, Derbyshire. Aged 31 years.

MACKAY.—On July 24, 1879, Mr. David Moir Mackay chemist and druggist, Aberdeen. Aged 52 years.

LEADBITTER.—On August 3, 1879, Mr. Walter Ferguson Leadbitter, chemist and druggist, Sunderland. Aged 71 years.

THURLAND.—On August 8, 1879, Mr. Edward Thurland, pharmaceutical chemist, Magdalen Street, Oxford. Aged 85 years.

Educational Information.

IN giving particulars concerning pharmaceutical and medical education, we show first the requirements of the various bodies to which are entrusted the power of granting diplomas, and afterwards we give some particulars of the schools which especially furnish the instruction required.

PHARMACEUTICAL DIPLOMAS.

The right to practise as a chemist and druggist in Great Britain is, by the Pharmacy Act of 1868, restricted to such candidates as pass (a) the Preliminary Examination, and (b) the Minor Examination of the Pharmaceutical Society. The Major Examination is purely honorary, and on passing it the title of Pharmaceutical Chemist is obtained. Unlike the practice in medical examining bodies, no special curriculum of study is stipulated, candidates obtaining their knowledge how and where they please. Candidates for the Minor Examination must, however, produce certificates of having attained the age of 21 years; and also to the effect that for three years they have been registered and employed as apprentices or students, or have otherwise for three years been practically engaged in the translation and dispensing of prescriptions. The following are the

Regulations of the Board of Examiners for the Examination and Registration of Pharmaceutical Chemists, Chemists and Druggists, and Apprentices or Students.

In accordance with the Pharmacy Acts, 15 & 16 Vict. cap. 56; 31 & 32 Vict. cap. 121; and 32 & 33 Vict. cap. 117.

THE FIRST OR PRELIMINARY EXAMINATION.*

(For Registration as "Apprentices" or "Students.")

This Examination is held throughout Great Britain on the first Tuesdays in January, April, July, and October in every year. Candidates for this examination must give not less than *fourteen* clear days' notice.

The examination is a written one, and comprises—

Latin.—Translation into English of a paragraph from the first book of Cæsar ("De Bello Gallico").

Latin Grammar.

English Grammar, Composition.

The first four rules of Arithmetic, Simple and Compound, Vulgar Fractions and Decimals, and a thorough knowledge of the British and Metrical systems of Weights and Measures.

In the case of candidates residing in the country and unable to attend in London or Edinburgh, the Registrar shall send the questions, under seal, to the person appointed to superintend the writing of the answers, with instructions that they be opened by him in the presence of the candidates, who shall write the answers forthwith in his presence in a given time. The questions are prepared and reported upon by the College of Preceptors.

THE BOARDS OF EXAMINERS IN LONDON AND EDINBURGH meet for conducting the Minor, Modified, and Major Examinations in February, April, June, July, October, and December. Candidates must give notice to the Registrar of their intention to present themselves, and pay the fee, on or before the first day of the month in which the examinations are held. A registrar's certificate of birth and a certified declaration (on a form which will be supplied on application) that for three years he has been practically engaged in translating and dispensing prescriptions must be produced by each candidate at the time of giving notice. Secretary and Registrar, in London, Elias Bremridge, 17 Bloomsbury Square, London, W.C. Secretary to the Board in Edinburgh, John Mackay, 119A George Street, Edinburgh.

MINOR EXAMINATION.

(For Registration under the Pharmacy Act, 1868, as "Chemists and Druggists.")

Candidates for this examination must have passed the First or Preliminary Examination.

The following form the subjects of examination:—

Prescriptions.—The candidate is required to read without abbreviation autograph prescriptions; translate them into English; and render a literal as well as an appropriate translation of the directions for use. To detect errors, discover unusual doses, and have a general knowledge of Posology; also to render in good Latin ordinary prescriptions written in English.

Practical Dispensing.—To weigh, measure, and compound medicines; write the directions in concise language in a neat and distinct hand; to finish and properly direct each package.

Pharmacy.—To recognise the preparations of the Pharmacopœia which are not of a definite chemical nature, and have well-marked physical characters, such as extracts, tinctures, powders, &c.; to give the proportions of the active ingredients and possess a *practical* knowledge of the processes, and the principles of the processes, by which they are made, and of the best excipients and methods of manipulation for forming emulsions, pills, &c.

Materia Medica.—To recognise specimens of roots, barks, leaves, fruits, resins, gums, animal substances, &c., used in medicine; give the botanical and zoological names of the plants, &c., yielding them, and the natural families to which they belong; name the countries and sources from which they are obtained, the official preparations into which they enter, and judge the quality and freedom from adulteration or otherwise of the specimens.

Botany.—To recognise the more important indigenous plants used in medicine. To possess a general knowledge of the elementary structure of plants, and the structure and distinctive characters of roots, stems, leaves, and their parts. To name and describe the various parts of the flower.

Chemistry.—To recognise the ordinary chemicals used in medicine. To possess a *practical* knowledge of the processes by which they are produced, the composition of such as are compound, and explain the decompositions that occur in their production and admixture, by equations or diagrams. To determine practically, by means of tests, the presence in solution of the chemicals in common use, and explain the reactions which occur in each case. To possess a general knowledge of the laws of chemical philosophy and a *practical* knowledge of the means of determining specific gravities, densities, and temperature, and of the instruments appertaining thereto and the physical and chemical constitution of the atmosphere.

MAJOR EXAMINATION.

(For Registration as "Pharmaceutical Chemists" under the Pharmacy Act, 1852.)

Candidates for this examination must have passed the Minor Examination at least three months previously.

Materia Medica.—This comprises a *practical* knowledge of the methods of estimating the value of important drugs, of obtaining their active proximate constituents in a separate state; of identifying them and ascertaining their purity or impurity by tests.

Botany.—This comprises an intimate acquaintance with the parts of the flower, fruit, and seed; the functions and mode of arrangement of the different organs of plants; a knowledge of the general principles of classification, and of the Linnean and De Candolle's systems. The candidate must be able to distinguish practically between each of the following natural orders:—Ranunculaceæ, Papaveraceæ, Crucifere, Malvaceæ, Leguminosæ, Rosaceæ, Cucurbitaceæ, Umbellifere, Compositæ, Gentianaceæ, Convolvulaceæ, Solanaceæ, Atripaceæ, Labiata, Scrophulariaceæ, Polygonaceæ, Euphorbiaceæ, Orchidaceæ, Iridaceæ, Liliaceæ, Melanthaceæ, Graminaceæ; and refer to their respective orders such specimens as may be shown to him.

Chemistry.—This comprehends an intimate knowledge of the laws of chemical philosophy, a *practical* knowledge of the nature and properties of the elements and their compounds, both organic and inorganic, especially those used in medicine or the arts. The different combinations and decompositions must be explained by equations; also the *qualitative* analysis of the more important chemicals, e.g., Nitrates, Chlorides, Carbonates, Sulphates, Phosphates, Oxalates, Tartrates, &c., and the detection of impurities in them, and the *volumetric* estimation of the strength of all Pharmacopœia preparations in which standard solutions are ordered to be used.

An elementary knowledge of the properties of light, heat, electricity, and magnetism is also required.

If a candidate fail to pass either of the examinations, the fee will be returned, less one guinea, but he will be admitted to a subsequent examination, after an interval of three months, on giving the usual notice and payment of the full fee.

Examination or Registration Fees and Subscriptions to the Society.

FEES.	ANNUAL SUBSCRIPTIONS on becoming connected with the Society.	
	£ s. d.	£ s. d.
First or Preliminary (Registered as Apprentices or Students)	2 2 0	0 10 6
Minor (Registered as Chemists and Druggists) 3 3 0	3 3 0	0 10 6
Major (Registered as Pharmaceutical Chemists) .. 5 5 0	5 5 0	1 1 0
		Or a Life Member's Commutation Fee of Twenty Guineas.
Chemists and Druggists in business before August 1, 1868, and registered as such, on being elected Members of the Society, pay an Entrance Fee of	£2 2 0	
And Subscription for the current year	1 1 0	
		£3 3 0

COUNCIL EXAMINATION PRIZES.

Pharmaceutical chemists who were associates of the Society at the time of passing the Major Examination will be entitled to compete for the following prizes at the end of the session, in the month of July, in which they passed the Major Examination.

* Certificates of having passed the Local Examinations of the Universities of Oxford, Cambridge, or Durham, the Examination of the College of Preceptors, or those of any legally constituted Examining Body previously approved by the Council, *provided Latin and Arithmetic be included in the subjects*, are accepted in lieu of this examination.

First Prize.—Pereira Medal in silver, and a present of books value 5*l.*, or thereabouts, given by Mr. T. H. Hills.

Second Prize.—The Pharmaceutical Society's Medal in silver, and a present of books value 3*l.*, or thereabouts, given by Mr. T. H. Hills.

Third Prize.—The Pharmaceutical Society's Medal in bronze, and a present of books value 2*l.*, or thereabouts, given by Mr. T. H. Hills.

Subjects of Examination.—Materia Medica, Botany, and Chemistry.

PHARMACEUTICAL SOCIETY OF IRELAND.

ONLY one qualification—that of Pharmaceutical Chemist—is recognised by the Council. Women are admitted to examination under the same limitations as men. Licentiates of the Apothecaries' Hall, of Ireland, may be registered as Pharmaceutical Chemists without examination on payment of three guineas. The members' subscription is one guinea per annum, or a life composition of ten guineas.

The following are the regulations for candidates for the qualification of Pharmaceutical Chemist:—

PRELIMINARY EXAMINATION.

Latin.—To translate into English, and parse, one or more sentences from a Latin author:—Caesar's "Commentaries," First Book; or Virgil's "Æneid," First Book.

English.—To write on a subject selected by the examiner, and to write from dictation.

Arithmetic.—The first four rules, simple proportion, and decimals. To describe the weights and measures of the Pharmacopœia, and of the metric system.

The Rudiments of Chemistry and Botany.—(See Roscoe's "Chemistry"—Science Primers, and Browne's "Botany"—Elementary Science Manuals.)

Candidates presenting themselves for this examination must not be under sixteen years of age.

The fee for this examination will be 2*l.* 2*s.*

In case of rejection, the fee to be retained, but a rejected candidate may present himself for examination after a lapse of six months without additional payment.

Preliminary examinations are held on the first Monday of January, April, July, and October.

PHARMACEUTICAL EXAMINATION.

Candidates presenting themselves for this examination must be twenty-one years of age, and have passed the Preliminary Examination at least one year previously.

Candidates must also have been practically engaged in compounding and dispensing for at least two years, under the instruction of a pharmaceutical chemist or apothecary, and must produce a certificate of having attended a practical course in chemistry in either Trinity College, Royal College of Surgeons, Carmichael College, and the Queen's Colleges of Belfast, Cork, and Galway, or Royal College of Science.

Examinations are held on the first Wednesday of January, April, July, and October.

Botany.—To recognise the principal indigenous plants used in medicine, to refer them to their natural orders, and to give the definitions and the distinctive characters of their several parts.

Materia Medica.—To recognise specimens of the drugs of the Pharmacopœia, to describe their characters and active principles, name the sources from which they are obtained, and the official preparations into which they enter; and to detect adulterations.

General and Pharmaceutical Chemistry.—The elementary laws of chemistry and physics, including chemical equations. To recognise the chemical substances of the Pharmacopœia, to describe the processes by which they are obtained; qualitative analysis, including the tests of the Pharmacopœia and volumetric analysis; and to submit to a practical examination in these subjects when required.

Practical Pharmacy.—To translate Latin prescriptions; to detect dangerous doses; to compound and dispense correctly.

To explain the processes of making the non-chemical preparations of the Pharmacopœia, and to recognise them.

Candidates are to give notice to the Council, seven clear days before the stated meetings for examination, of their desire to be examined; and also to lodge a receipt of having paid the fee of five guineas into the Bank of Ireland to the credit of the Society.

In case of rejection, the fee will be retained, but a rejected candidate may present himself for re-examination after a lapse of six months.

FORM OF NOTICE.—"I, _____, desire to be examined for the licence to act as a Pharmaceutical Chemist."

Mr. H. J. Fennell, College of Physicians, Kildare Street, Dublin, will give any additional information required.

THE SCHOOL OF PHARMACY OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

PROFESSORS.

CHEMISTRY AND PHARMACY	Professor REDWOOD, F.C.S.
BOTANY AND MATERIA MEDICA	Professor BENTLEY, F.L.S.
PRACTICAL CHEMISTRY	Professor ATTFIELD, F.C.S.

The thirty-eighth Session, 1879-80, will commence on October 1, 1879, and terminate on July 31, 1880.

At 8 P.M. on October 2 the School prizes will be distributed, and an address to the students delivered by Dr. W. A. Tilden.

Application for admission to the school, for prospectuses, or for further information, may be made to the professors or their assistants in the Lecture Room or Laboratories, 17 Bloomsbury Square, London, W.C.

CHEMISTRY AND PHARMACY.

	£	s.	d.
One Course	3	3	0
An entire Session (two Courses)	4	4	0
Perpetual admission	5	5	0

BOTANY AND MATERIA MEDICA.

	£	s.	d.
Botany and Materia Medica, one Course (five months)	2	2	0
An entire Session (two Courses), including Systematic and Practical Botany	3	3	0
Systematic and Practical Botany, separately	1	1	0
Perpetual Admission to all the Courses	4	4	0

A student entering for the first course on Botany and Materia Medica is also entitled to attend the lectures on Systematic and Practical Botany on payment of two guineas and a half at the time of entering this first course in October.

PRACTICAL CHEMISTRY.

Professor of Practical Chemistry	DR. JOHN ATTFIELD, F.C.S.
Demonstrator	DR. ALFRED SENTER, F.C.S.
Assistant-Demonstrator	MR. HENRY ALLEN.

FEES.

Hours of Study	One Month	Two Months	Three Months	Five Months	Ten Months
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
10.0 to 5.0 daily (Sat. 10.0 to 2.0)	4 4 0	7 7 0	10 10 0	15 15 0	26 5 0
10.0 to 5.0 on any 3 days weekly ..	2 17 6	4 17 6	6 16 6	10 10 0	17 17 0
10.0 to 5.0 on any 2 days weekly ..	2 2 0	3 10 0	4 17 6	7 7 0	12 12 0
Any 3 hours daily	2 17 6	4 17 6	6 16 6	10 10 0	17 17 0
Any 2 hours daily	2 2 0	3 10 0	4 17 6	7 7 0	12 12 0

THE SOUTH LONDON SCHOOL OF PHARMACY.

325 Kennington Road, S.E.

Director—Dr. JOHN MUTER, M.A. Secretary—Mr. WM. BAXTER.

The session commences on September 16, and lasts till July 20, and the following courses of lectures, etc., are delivered several times during the session:—Latin: A course of sixty lessons. Botany: A course of sixty lectures. During the summer months a lecture is delivered once a week, at Mitcham, on Mr. Bridger's herb farm. Materia Medica: A course of sixty lectures. Pharmacy: This course lasts three months, and includes—A description of the processes used in pharmaceutical laboratories, and practical instruction in dispensing and elegant pharmacy. Theoretical Chemistry: A course of sixty lectures. Practical Chemistry: 1. Junior Course (three months):—This includes—1. The manufacture of the chief chemicals of the B.P., in which the processes are typical; 2. Qualitative analysis, and separation of bases and acids; 3. The practical taking of specific gravities, temperatures, and the measurement of gases. 11. Senior Course (six months):—This extends to—1. Detection of poisons in organic mixtures. 2. Quantitative analysis of B.P. substances, gravimetric and volumetric; 3. Analysis of manures, water, minerals, etc.; 4. Microscopic and chemical examination of food and drugs, for detecting adulterations; 5. Elementary organic analysis.

Fees.—1. For the whole course of lectures (including admission to the museum), 8*l.* 8*s.* (This fee entitles laboratory students to attend from the date of entry to the end of the entire session. For example, a student entering the school in September can continue to attend the lectures if he chooses until the end of the session in July, and return as often as he pleases any number of sessions without extra expense, provided he also attends the laboratory.) 2. For the laboratory—Junior Course, three months, 6*l.* 6*s.*; Senior Course, first month, 4*l.* 4*s.*; each succeeding month, 3*l.* 3*s.* Students who attend the lectures must also take laboratory tickets, as the course cannot be divided in any way.

The institution offers silver and bronze medals, for which all the students can compete. Over 1,500 persons from this school have passed the Pharmaceutical Examinations. Instruction in Microscopy and General and Food Analysis is given to medical officers of health and others.

WESTMINSTER COLLEGE OF CHEMISTRY AND PHARMACY.

62, Lambeth Road, London, S.E.

Proprietors—Messrs. WILLS & WOOTTON.

The session extends from September 1 till July 25.

Two classes of students are received, and 400 lectures are delivered on the following subjects:—Latin, Dispensing, Pharmacy, Botany, Materia Medica, Chemistry, Physics.

Fees.—Preliminary course, one month, 2*l.* 2*s.*; or until qualified, 5*l.* 5*s.*; Minor course, one month, 3*l.* 5*s.*, three months, 7*l.* 7*s.*, inclusive fee until qualified, 10*l.* 10*s.* (For this fee a student can attend until qualified as a Pharmaceutical Chemist, provided he commence his study for the Major within three months from the date of passing the Minor.) Major course,

one month, 2*l.* 2*s.*, until qualified, 5*l.* 5*s.*; a fraction of a month being charged at the same ratio. Fee to old students according to arrangement. Accommodation is provided for resident pupils. Terms, 1*l.* 1*s.* per week. Students work independently, and can therefore enter at any time.

Medals and certificates are awarded at examinations held in April, July, and December in each year.

Evening Classes are held for gentlemen engaged during the day. Major: Monday, Practical Chemistry, 7 till 9. Class 9 till 10. Minor and Modified: Tuesday, Wednesday, and Thursday, Practical Chemistry, 7 till 8.30. Lectures, 8.30 till 10. Preliminary: Friday, 7 till 9.

Terms for Evening Classes—Major, one month, 8*s.*; three months, 1*l.* 1*s.*; until qualified, 5*l.* 5*s.* Minor, one month, 6*s.*; six months, 2*l.* 1*s.*; for the entire course (ten months), 1*l.* 11*s.* 6*d.* Preliminary, one month, 4*s.*; three months, 10*s.* 6*d.*; until qualified, 3*l.* 3*s.*

A Dispensary is attached to this school, and students receive practical instruction without extra charge.

Postal System.—Fee for Preliminary Examination, 10*s.* 6*d.*; for Modified, Minor, or Major, 1*l.* 1*s.* Courses of lectures on all the subjects of the examinations are sent through the post from the College, the student returning his last lecture when he receives a new one.

Messrs. Wills & Wootton announce that during the session 1878-79 21 students from this school presented themselves for the Major Examination, and 18 passed; 154 presented themselves for the Minor, and 125 passed; 7 presented themselves for the Modified, and 6 passed; 19 presented themselves for the Preliminary, and all passed. These are exclusive of postal students.

The session 1879-80 commenced on September 1, with 100 students in attendance.

CENTRAL SCHOOL OF CHEMISTRY AND PHARMACY,

173 Marylebone Road, London, N.W.

Teacher of Chemistry and Physics: Mr. A. P. Luff, B.Sc., F.C.S., F.L.S., A.I.C.; Teacher of Pharmacy, Botany, Materia Medica, &c.: Mr. J. Woodland, F.C.S., F.L.S. The session extends from September 1 to July 31.

Students who desire it are provided with board and lodging at 11 Lisson Street, Marylebone Road; terms, 1*l.* 1*s.* a week.

A class in Practical Dispensing is held; fee, 10*s.* 6*d.* A well-fitted laboratory is attached to the school; apparatus and chemicals are provided free of charge.

FEES (payable in advance):—One month, 4*l.* 4*s.*; two months, 7*l.* 7*s.*; three months, 9*l.* 9*s.*; the entire session, 15*l.* 15*s.* Students wishing to attend the classes on Chemistry and Physics only, can do so by payment of 1*l.* 1*s.* per month.

Students wishing to enter their names, and for further particulars, are requested to apply to Messrs. Luff & Woodland, 173 Marylebone Road, N.W.

EDINBURGH SCHOOL OF CHEMISTRY (PHARMACEUTICAL SECTION), Marshall Street, Nicolson Square, Edinburgh.

The classes in Chemistry qualify for graduation in Science and Medicine at the University of Edinburgh, and all other examining boards in Medicine in the United Kingdom. The Pharmaceutical courses are conducted separately from the qualifying instruction. Besides the usual day classes, there are evening classes for gentlemen engaged in business during the day. A dispensary is attached to the School, in which the students are instructed in Practical Pharmacy and Dispensing.

LECTURERS:—Chemistry: Dr. Drinkwater; Materia Medica and Pharmacy: Dr. Urquhart; Botany: Mr. McAlpine, B.Sc.

The Practical classes are conducted by the lecturers on Pharmacy and Chemistry, respectively.

All information supplied by the Secretary, R. Urquhart.

THE WEST CENTRAL SCHOOL OF CHEMISTRY AND PHARMACY.

19 Great Coram Street, Russell Square, W.C.

Principal—MR. HENRY JUDD.

The Evening Classes for Pharmaceutical Students are the oldest-established in the kingdom, having reached their eleventh half-yearly session. They are held throughout the week, from 7.30 to 10 p.m., viz., Monday, Preliminary; Tuesday, Wednesday, Thursday, and Friday, Minor. A Preliminary Class is held at 3.30 on Wednesdays, conducted alternately by the Principal and C. P. Marriott, M.A.

FEES (payable in advance, or by instalments).—Preliminary, for the full term of three months, 2*l.* 2*s.* (proportionally less between terms). Minor, inclusive until successful, 10*l.* 10*s.*; one night weekly, for three months from entrance, 2*l.* 2*s.*; two nights weekly, ditto, 3*l.* 3*s.*; three nights weekly, ditto, 3*l.* 13*s.* 6*d.*; Private Tuition for any Examination, per hour, 3*s.* 6*d.* Major—Students are only received for private tuition. Mr. Judd supplies country students with lectures to be copied at a guinea a set.

THE MANCHESTER SCHOOL OF PHARMACY.

(In connection with the Manchester Chemists' Association.)

The following Courses of Lectures will be delivered by Mr. Louis Siebold, F.C.S., at 225 Oxford Street, commencing early in October:—Thirty-five lectures on Chemistry, on Friday evenings, from 7.30 to 9 o'clock, fee, 3*s.* Thirty lectures on Materia Medica and Pharmacy, on Tuesday evenings, from 7.30 to 8.45, fee, 3*s.* Twenty lectures on Analytical Chemistry, on Tuesday evenings, from 8.45 to 9.45, fee, 2*s.* Composition Fee, admitting the student to all three courses, 3*l.* 10*s.* Students attending these courses must be Associates of the Manchester Chemists' Association. The subscription (2*s.* 6*d.*) may be paid with the fees. Tickets and further information may

be obtained of Mr. Siebold, or of Mr. F. Baden Bengier, Hon. Sec., 7 Exchange Street. [N.B.—A course of lectures on Botany, by Mr. Leo H. Grindon, will be commenced early after Christmas.]

TULLY'S POSTAL SYSTEM.

MR. JOHN TULLY, of 52 Camden Road, Tunbridge Wells, "Hill's Prize-man," established his postal system in 1872. It is divided into three classes. No. 1 is for the Preliminary, including all the subjects of the syllabus. If the student fail on first presenting himself, he is instructed for the next examination free of charge, providing he passes it within six months. No. 2 is for the Minor Examination for students under 20 years of age. It is intended to give direction to the studies, and to prevent the formation of an inattentive habit of reading. It includes monthly examination papers to be answered, and lectures which cover all the ground for the Minor and Major. Students must be between 16 and 20 years of age; they can commence at any time, but must continue for not less than six months. The fee is a guinea a year, payable half-yearly in advance. No. 3 is for the Minor for students over 20, and includes a full series of lectures. Fee, one guinea, payable in advance. A special course is organised for the Modified and Apothecaries' Hall Examinations.

THE MEDICAL PROFESSION.

GRANTED a good constitution, the boy or girl who wishes to be a doctor is pretty sure to succeed, however unfavourable all other circumstances may be. The life of a doctor, from his first acquaintance with the Registrar of the General Medical Council to the application of his Executor to the Registrar of Births and Deaths is anything but an easy one. A busy practitioner gives himself up almost entirely to his patients, and many of the pleasures of life must be sacrificed. At the same time compensatory pleasures are met at every turn, and all good doctors pray that they may die in harness.

It may be safely said that no one without a decided wish to be a doctor is likely to succeed in the profession.

A familiarity with Latin, German, and French, a sound elementary knowledge of chemistry and physical science, and a practical knowledge of shorthand, acquired at school, are invaluable to a medical student. We think, indeed, that parents would do well to insist that their sons should have regular instruction in shorthand at least. Any student possessing these advantages will have a year's start of his contemporaries.

The first fixed point in the life of the medical student is the Preliminary Examination. This must include English (with grammar and composition), arithmetic (to vulgar and decimal fractions), algebra (to simple equations), geometry (first two books of Euclid), Latin translation and grammar, and one of the following optional subjects—Greek, French, German, or natural philosophy (mechanics, hydrostatics, and pneumatics). The best preliminary examination is the matriculation of the London University. This is certainly the stiffest, but it puts the successful candidate in a position to enter any course of medical study he may prefer, except the curriculum of the University of Oxford. Full information can be obtained from the Secretary of the University. No other examination is so valuable in this respect. All the other licensing bodies hold similar examinations; those most generally undergone are the examinations held by the London College of Surgeons, the United Colleges of Physicians and Surgeons, Edinburgh, the Apothecaries' Society, the Glasgow Faculty of Physicians and Surgeons, and the Registration examination for medical students held by the University of Dublin. The certificates of the Oxford and Cambridge local examinations and several others, provided they include Latin and mathematics, are accepted by many of the licensing boards in lieu of the Preliminary Examination.

The next step is Registration. Application should be made to the Registrar of the General Medical Council, 315 Oxford Street, for a form of application for registration as a medical student. This must be filled up and returned with the certificate of the Preliminary Examination. Forty-eight months after registration the student will be eligible for his final examination if he is 21 years old.

The student may do what he likes with these four years, the only requirement is that he shall attend four winter sessions, or three winter and two summer sessions at some recognised medical school.

The Final or Professional Examination must comply with

the following regulations laid down by the General Medical Council:—

"The Professional Examination for a licence shall be divided into two parts; the first embracing the primary or fundamental branches directly connected with the practice of medicine or surgery. The former shall not be undergone till after the close of the winter session of the second year of professional study; and the latter, or final examination, not until after the close of the prescribed period of professional study.

"The examination in Physics, Botany, and Natural History may be undergone at an earlier period than the first Professional Examination.

"The Professional Examinations shall be conducted both in writing and orally, and they shall be practical in all branches in which they admit of being so.

"Excellence in one or more subjects shall not be allowed to compensate for failure in others; and that if a candidate be rejected for failure in any one subject he shall be re-examined in all."

This examination passed, the physician, surgeon, or doctor is at liberty to practise medicine when and where he will in Great Britain. No authority can hinder him in any way. At the same time all legally qualified medical practitioners seek registration from the General Medical Council. The certificate must be forwarded to the registrar, accompanied by a form properly filled, and a fee of 5*l*. If the applicant is of good character, and has conformed to the regulations, the Council has no power to refuse registration, and the newly-registered doctor is entitled to a copy of the register free of charge. Registration confers important privileges. It enables him to recover his fees in a court of law, to hold public appointments, and to sign legal certificates. It also supplies the most convenient proof of legal qualification, and, like a passport in a friendly country, though not necessary, it may be useful.

At present 19 corporate bodies in the United Kingdom are empowered to hold the Professional Examination and to grant certificates entitling their holders to registration. Under the present state of things only universities can confer the degree of Doctor of Medicine or Surgery; the degree granted by the London University is the highest mark of professional attainments obtainable in Great Britain; from any university it is a distinction highly esteemed by the initiated. The degree of the London University is the only one which can be obtained without a more or less lengthy residence at a college. University training is a great advantage, but where time and expense are an object it must be dispensed with; still the London University affords every student the opportunity of raising himself to the highest standard in his profession, and it is well for all to aim high. We strongly advise all young men to set M.D. Lond. before them as the goal of their student career.

We propose to give first a summary of the requirements of the different examining bodies, and then a list of schools where professional education can be obtained.

London University.—The degrees of Bachelor and Doctor of Medicine and Bachelor and Master of Surgery are granted here. The fee for each examination is 5*l*. (1) Preliminary Scientific (M.B.) Examination is best passed before commencing regular medical studies. The candidate must be 17, and must have matriculated. (2) First M.B. Examination. Candidates must be 19, must have passed the Preliminary Scientific at least a year previously, have been a student at a medical school at least two years, and passed through a certain course of study. (3) Second M.B. Examination. Two academical years must elapse between the first and second examinations, and a further and more special course of study must have been undertaken. (4) Doctor of Medicine. At least two years must have been given the practical study of medicine after the second M.B. was passed. The subjects of examination are Logic, Psychology, and Medicine. (5) Bachelor of Surgery. Candidates must have passed the second M.B., and attended a course of instruction in Operative Surgery. Master in Surgery candidates must have devoted at least two years to the practical study of surgery since obtaining the degree of B.S. Full information will be found in the University Calendar.

The University of Oxford grants the degrees of M.B. and M.D. The medical student must acquire the degree of B.A., and afterwards spend two years in study prior to the first or scientific examination for the degree of Bachelor of Medicine, and two years more prior to the final or practical examination for the same degree. Evidence must be brought to show that he has studied the practical parts of his profession in a first-class hospital. A dissertation must be publicly read three years after the M.B., for the degree of M.D. Copies of the examination papers can be obtained through the booksellers, and full information may be obtained from the University Calendar.

The University of Cambridge, besides M.B. and M.D., grants the degree of M.C. (Master in Surgery). Students must keep terms for at least three years; the expense is about 150*l*. a year for collegiate, and 80*l*. or 90*l*. a year for non-collegiate students. Information regarding the latter can be obtained from the Rev. R. B. Somerset, Oxford House, Cambridge. For M.B. five years of medical study are required, except in the case of medical students who have graduated with honours as Bachelors of Arts, four years being then sufficient. There are three examinations, partly in writing and partly oral, and held twice annually in the hospital.

Before the first examination, lectures must have been attended on Chemistry (with manipulations) and Botany. Before the second exami-

nation, the student must have attended lectures on Anatomy and Physiology (Human and Comparative), Materia Medica, Pharmacy, and Pathology; have dissected one season; and attended hospital practice one year. Before the third examination, lectures must have been attended on the Principles and Practice of Physic, Clinical Medicine, Medical Jurisprudence, and Midwifery; also Hospital Practice for three years.

The degree of M.D. may be taken three years after M.B. The regulations are similar to those at Oxford.

For the degree of M.C., the candidate must have passed the three examinations for M.B., and have attended lectures on Human Anatomy (a second course), on the Principles and Practice of Surgery, Clinical Surgery, Midwifery (with ten cases); also a second season of Dissections, three years' surgical practice at a recognised hospital, and a house-surgeoncy or dressership for six months. He is then required to pass an examination in Surgical Anatomy, Pathology, the Principles and Practice of Surgery, and Clinical Surgery.

The University of Durham, Newcastle-on-Tyne, confers licences in medicine and surgery, and the degrees of Bachelor of Medicine, Master in Surgery, and Doctor of Medicine. Candidates for the licences must have studied medicine at least one year at the University, and three years at the University or elsewhere. There are two examinations, one at the end of the second year's session, the other at the close of the fourth year. The last examination is directed especially to medicine or surgery, according to the licence desired, or both may be undergone at the same time. The regulations for the degree of Bachelor of Medicine and Master of Surgery are the same as those for the licences, but the examinations are more stringent. For the degree of Doctor of Medicine, in addition to the B.M., the candidate must write an essay, and pass two years in the practice of medicine and surgery. A special examination is held in State Medicine, fee five guineas.

The Universities of Edinburgh, Glasgow, and Aberdeen confer the degrees of M.B., C.M., and M.D. The first must be passed before either of the others are granted. For the M.B. and C.M. degrees a course of four years, and 1,150 lectures, at least, of medical and surgical study is required, and each candidate is examined both in writing and *ad vocem*—1st, on Chemistry, Botany, and Natural History; 2nd, on Anatomy, Institutes of Medicine, Materia Medica (including Practical Pharmacology), and Pathology; 3rd, on Surgery, Practice of Medicine, Midwifery, and Medical Jurisprudence; 4th, clinically on Medicine and on Surgery in a hospital. For the M.D. degree two years of medical and surgical practice must elapse, the candidate must be a graduate in Arts, and must submit a thesis composed by himself on any branch of knowledge comprised in the professional examinations for the M.B. degree.

At least a year must be spent at the University before any degree can be obtained. Total fees for M.B. degree, 15 guineas. Further information can be obtained from the Secretaries to the Medical Faculties.

The regulations of the **University of St. Andrew's** are similar, but in every year 10 medical practitioners above the age of 40 receive the degree of Doctor in Medicine, under certain restrictions as to experience, examination, &c.

The University of Dublin (Trinity College) grants the degrees of M.B., M.D., B.Ch., and M.Ch., and also licences in medicine (L.M.) and surgery (L.S.). To take the degree of M.B., it is required that the candidate shall also take that of B.A., and shall have attended hospital and lectures for four years. The M.D. degree is granted to an M.B. of three years' standing, who must perform exercises before the Regius Professor of Physic. The curriculum for the degree of M.Ch. is slightly different. A licentiate in medicine or surgery must pass the medical course and examinations required for M.B. or M.Ch. respectively. He can, however, afterwards take up his degree.

The fees for the degrees of Bachelor of Medicine or Surgery are 16*l*.; for Doctor of Medicine, 13*l*.; for Master in Surgery, 11*l*.; for the licences, 10*l*.

The Queen's University of Ireland comprises the Queen's Colleges of Belfast, Cork, and Galway. The degrees of Doctor of Medicine and Master in Surgery are granted at each of these colleges, and the regulations are very similar in each case. Candidates must have matriculated at some University; they must attend lectures during at least two sessions in one of the Queen's Colleges; these lectures, beside the usual medical studies, must have included a modern language and natural philosophy. The course of study extends over four years. Information can be obtained from the Secretaries of the Faculties of Medicine.

Besides the Universities, many other bodies now grant titles and licences to practise. Full information can be obtained from the Secretaries.

The Royal College of Physicians, London. There are Licentiates, Members, and Fellows of the Royal College of Physicians, London. The Licentiates have passed a Preliminary Examination in Arts, and two other professional examinations, besides showing that they have had at least four years of professional education as a registered medical student. The fee is fifteen guineas. The course of study previous to the examination for membership is almost similar to that prescribed for the licentiates. Candidates holding the degree of M.B. are also admitted, after a certain examination. The fee is thirty guineas. The members of the College are eligible for Fellowship.

The Royal College of Surgeons of England. To become a member the following course is prescribed. Preliminary Examination:—Students can pass this at the College. Fee 2*l*. Certain certificates, as, for instance, that of the Middle Class Examinations (Senior), are accepted in lieu of this examination, provided such include Latin and mathematics. The professional education must comprise four years of study subsequent to the Preliminary Examination, and include certain attendances at lectures and hospital practice. The fee is 22*l*. For Fellowship the curriculum is longer, the examinations more severe, and the fees higher. Or a member of eight years' standing may offer himself for the final examination for the Fellowship. The Royal College of Surgeons also grants certificates of qualification in midwifery and in dental surgery.

The Royal College of Physicians, Edinburgh, grants licences in medicine. The fee here is ten guineas. The curriculum is very similar to that which has been described. Any licentiate of a College of Physicians, or graduate of a British or Irish University, with whose knowledge of medical and general science the College may be satisfied, may be admitted a member of the College, provided he shall have attained the age of twenty-

four years. The fee to be paid by a member is 31*l.* 10*s.* When a licentiate is raised to the rank of member he pays 21*l.* When a member is raised to the rank of fellow the fee is 31*l.* 10*s.*, exclusive of stamp-duty, which amounts to 25*l.*

The Royal College of Surgeons, Edinburgh, also grants diplomas of membership. The fee here for the professional examination amounts to fifteen guineas.

The Royal College of Physicians of Edinburgh and the Royal College of Surgeons of Edinburgh, while they still continue to give their diplomas separately, under separate regulations, have made arrangements by which, after one series of examinations, the student may obtain the diplomas of both colleges. The general principle of this joint examination is that it shall be conducted by a board in which each body is represented in those branches which are common to both medicine and surgery; but that the College of Physicians shall take exclusive charge of the examination in medicine, and the College of Surgeons of the examination in surgery. The object of the joint examination is to give to students facilities for obtaining from two separate bodies, and at less expense, a qualification in medicine and a qualification in surgery. Students passing that examination successfully will be enabled to register two qualifications under the Medical Act—Licentiate of the Royal College of Physicians of Edinburgh and Licentiate of the Royal College of Surgeons of Edinburgh.

The Faculty of Physicians and Surgeons of Glasgow also grant a diploma. The candidates follow a curriculum similar to that of the Edinburgh College of Surgeons. The fee for the Preliminary Examination is 10*s.*, and for the Professional Examinations 10*l.* In connection with the Royal College of Physicians of Edinburgh a double diploma is also granted. The fee for this, as for the similar double diploma in Edinburgh (Professional Examinations only), is 20 guineas.

The King and Queen's College of Physicians in Ireland grants a licence in medicine, and also a licence in midwifery. A four-years' course of medical study is required, and a special additional examination for the midwifery qualification. The fee for the licence in medicine is 15 guineas; for the midwifery diploma, 3 guineas.

The Royal College of Surgeons in Ireland grants *Letters Testimonial* and Fellowship. For the former a Preliminary Examination and the usual medical course is required, the total of the fees being 26*l.* 15*s.* For Fellowship the B.A. or an equivalent examination is demanded as preliminary, and a longer course of study. The total fees are fifty guineas if the candidate intends to practise within ten miles of Dublin, or forty-one guineas otherwise.

The Society of Apothecaries, London, grants a certificate of qualification to practise as an Apothecary, and requires that the candidate shall produce testimonials of having passed a Preliminary Examination in Arts, as a test of general education. Of having attained the full age of twenty-one years. Of good moral conduct. And of having pursued a course of medical study in conformity with the regulations of the Court. The course of study includes three winter sessions and two summer sessions. The extent of the examinations is modified towards gentlemen holding the diplomas of other examining bodies. The Society also grants a certificate of qualification to act as an assistant, the examination comprising the following subjects:—In translating physicians' prescriptions; in the British Pharmacopoeia; in Pharmacy, Pharmaceutical Chemistry, and Materia Medica. Fees.—For a certificate of qualification to practise, six guineas, the half to be paid at the first examination; for an assistant's certificate, two guineas.

The Apothecaries' Hall of Ireland grants a licence to practise and certificates of qualification as assistant. Candidates for the licence must have passed four years in professional study. The fee for the licence is 10*s.*

MEDICAL SCHOOLS.

The selection of a medical school is always a difficult matter. There are eleven schools in London, most of which charge 130 guineas for the complete course: some others have lower terms. Provincial schools, though doubtless nearly as good, have not such a high reputation as the metropolitan, and the student who commences his curriculum in the provinces generally comes to London to complete it. Preference should perhaps be given to schools which admit all students to hospital appointments without extra fee. Schools have a distinct moral and mental atmosphere, and where possible it may be wise to make inquiries on this point.

We give beneath the names of the different medical schools, with the number of beds in the hospitals attached, the fees, and a short summary of the scholarships, &c.

Further information concerning many of them will be found in our advertisement pages.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL,

Hyde Park Corner, S.W.

The hospital contains 353 beds. All hospital appointments are allotted after examination, without additional expense. Four of the higher appointments bring a salary of 50*l.* each, and the office of obstetric assistant brings a salary of 100*l.* The perpetual pupil's fee is 130*l.*, payable in instalments, or 125*l.* payable in advance. There are several extra charges. There seem to be no entrance scholarships, but the school is rich in rewards for third- and fourth-year students.

CHARING CROSS HOSPITAL MEDICAL SCHOOL.

Students who enter for the full course enjoy special advantages, and are called "matriculated students." There are two entrance scholarships, one of 30*l.* and one of 20*l.*, tenable for one year. A scholarship of 15*l.* is open to students at the end of their first year, another of 25*l.* at the end of the second, and one of 5*l.* at the end of the third year. The hospital appointments are open to all matriculated students, and the higher ones entitle the holders to rooms and commons in the hospital and to salary. The fees for the whole course are 84 guineas, and for matriculated students 83*l.* 4*s.* 8*d.* The hospital contains 150 beds.

MIDDLESEX HOSPITAL SCHOOL OF MEDICINE.

The hospital contains 300 beds. The fee for unlimited attendance is 90*l.* payable in advance, or 100*l.* for four years, payable in unequal yearly instalments. Two entrance scholarships, valued at 25*l.* and 20*l.*, tenable for two years, will be offered at the commencement of the coming session. Two others, of 30*l.* and 20*l.* respectively, are offered to third-year students. Clinical clerk- and dresser-ships are open to the students, but 20 or 30 guineas is paid by the house surgeons and physicians on their appointment.

ST. THOMAS'S HOSPITAL MEDICAL SCHOOL.

The hospital contains 572 beds. The fee for perpetual tickets is 125*l.* if paid in advance, 130*l.* in two instalments, or 140*l.* in three instalments. There are several extra charges. Two scholarships in Natural Science, of 60*l.* and 4*l.* respectively, are annually awarded to first-year students. A scholarship of 30*l.* is open to students at the end of their first, and one of 40 guineas at the end of their second year. The appointments are open without additional fee.

GUY'S HOSPITAL MEDICAL SCHOOL.

The hospital contains 695 beds. There are two entrance scholarships of 125 guineas each. Appointments are allotted according to merit, and without extra payment.

LONDON HOSPITAL AND MEDICAL COLLEGE.

There are four scholarships open to new students, value 20*l.*, 30*l.*, 40*l.*, and 60*l.*, respectively. The hospital contains nearly 800 beds. There are several valuable appointments. Fees, 90 guineas in advance, or 100 guineas in three instalments.

ST. MARY'S HOSPITAL MEDICAL SCHOOL, *Cambridge Place, Paddington, W.*

For particulars apply to Dr. A. B. Shepherd.

QUEEN'S COLLEGE, BIRMINGHAM.

Faculty of Medicine.

A composition fee of 102 guineas, which may be paid in two instalments is accepted for a full course of medical and surgical instruction. Students are admitted to two hospitals with 400 beds. Scholarships are offered at the end of the second and fourth years of study.

BRISTOL MEDICAL SCHOOL: AFFILIATED TO UNIVERSITY COLLEGE, BRISTOL.

Composition fee—60 guineas for the college, and 35 guineas for the Infirmary, or 20 guineas for the General Hospital course. The Bristol Royal Infirmary contains 264, and the General Hospital 154 beds. An entrance scholarship of 20*l.* is offered by the Bristol General Hospital.

LEEDS SCHOOL OF MEDICINE.

Composition fee, for lectures, 48 guineas, or 50 guineas in two instalments; for medical and surgical practice at the Leeds General Infirmary for three years, 20 guineas; perpetual, 25 guineas. The Infirmary contains about 300 beds.

LIVERPOOL ROYAL INFIRMARY SCHOOL OF MEDICINE.

The Infirmary contains nearly 300 beds. The perpetual hospital fee is 32 guineas; the composition fee for lectures is 50 guineas. The total expense for medical and surgical education at this school is about 90*l.* The hospital appointments are free. An opening scholarship of 21*l.* is given to the candidate who shall have taken the highest position at the London matriculation examination.

OWENS COLLEGE, MANCHESTER.

College composition fee, 60 guineas; hospital fee, 40 guineas. There are entrance scholarships, which are awarded to students who take the highest place at the London matriculation examination. Hospital practice is provided at the Manchester Royal Infirmary, containing, with its branch establishments, more than 500 beds. There are some valuable appointments open to students.

SHEFFIELD SCHOOL OF MEDICINE.

Perpetual fee for lectures, 45*l.* Hospital practice may be attended either at the General Infirmary (180 beds), or the Public Hospital and Dispensary (110 beds). Perpetual fee in each case, 35 guineas.

DR. STEEVEN'S HOSPITAL AND MEDICAL COLLEGE, *Dublin.*

The hospital contains 250 beds. Composition fee for the medical school, 50*l.* 3*s.* 6*d.*; fee for hospital, 12 guineas for nine months.

CATHOLIC UNIVERSITY OF IRELAND.

School of Medicine, Cecilia Street, Dame Street, Dublin.

Perpetual fee for lectures, 50*l.* 17*s.* 6*d.*

CARMICHAEL COLLEGE OF MEDICINE AND SURGERY,

Aungier Street, Dublin.

This is connected with the following hospitals:—The Adelaide, City of Dublin, Cork Street (Fever), House of Industry, Mater Misericordiae, Meath, and Mercer's. Fee for the full course of lectures for the Royal College of Surgeons, Ireland, 58*l.* 5*s.* 6*d.*

NEW CARMICHAEL COLLEGE OF MEDICINE AND SURGERY,

Aungier Street, Dublin.

For particulars apply to the Registrar, Dr. Harvey, 7 Upper Merion Street, Dublin.

QUEEN'S COLLEGE, BELFAST.

Faculty of Medicine.

Fees according to the classes attended, generally 2*l.* a class. Hospital practice must be obtained outside the college. Two scholarships of 24*l.* are awarded to first year's medical students.

QUEEN'S COLLEGE, GALWAY.

Faculty of Medicine.

Minimum fee for the degree of M.D., 39*l.* 5*s.* 1*d.* Hospital practice must be obtained elsewhere.

ARMY MEDICAL SERVICE.

At present the remuneration of army doctors and the regulations affecting them are so unsatisfactory that few or no candidates are offering themselves for the post. Formerly a commission was regarded as a provision for life: the regimental surgeon held a permanent and influential position, and extra qualifications were demanded from all candidates. Examinations are held by the Army Medical Department, 6 Whitehall Yard, S.W.; selected candidates, who must previously have obtained their diplomas in medicine and surgery, are sent to the Army Medical School, Netley, and undergo a special training lasting some months; and after passing a somewhat stringent examination in special subjects, are gazetted as surgeons, taking their seniority according to the aggregate numbers of marks at all the examinations. A knowledge of modern languages and natural science considerably improves the position of the candidate. It is probable that the regulations of this branch of the service will soon be much modified.

INDIAN MEDICAL SERVICE.

Candidates must possess a diploma or license to practise both medicine and surgery, and must labour under no bodily defect. He will be examined in professional subjects, and immediately on passing will be gazetted for duty.

NAVAL MEDICAL SERVICE

is under the control of the Admiralty, 9 New Street, Spring Gardens, S.W. The regulations are similar to those of the army.

MEDICAL OFFICER OF HEALTH.

OF the various public appointments open to medical men alone, the most important is that of Medical Officer of Health. The only legally required qualification is the usual double qualification for the practice of medicine. But in view of the large demand for specially qualified persons, several of the examining bodies have provided examinations in matters relating to State Medicine or Public Health, and grant certificates of proficiency in that subject. These are the London, Cambridge, Durham, Edinburgh, and Glasgow Universities, and the Royal College of Physicians, Edinburgh.

The syllabus of the examination is almost the same in each case.

The Examination at the London University includes the following subjects:—Chemistry and Microscopy, in their relation to air, water, and food; Meteorology and Geology (as far as they bear on the duties of Health Officers, viz., general knowledge of meteorological conditions, reading and correction of instruments, general knowledge of soils, their conformation and chemical composition; Vital Statistics in reference to the methods employed in determining the health of a community, birth rate, death rate, disease rate, duration and expectancy of life, present

amount of mortality and its causes in different communities; Hygiene—general principles of hygiene; Special Topics—soil, construction of dwellings, conservancy of cities, unhealthy trades, supply of food to cities and examination of food, disposal of sewage, water supply; Medicine, in reference to the origin, spread, and method of prevention of diseases generally, but especially of those of the epidemic class; Sanitary Engineering (as far as regards the arrangement connected with water supply, sewerage, and ventilation), a knowledge of the reading of plans, sections, scales, &c.; Sanitary Law (as far as it relates to the duties of Officer of Health), a knowledge of the powers given under the various Sanitary Acts, as defined in the instructions issued by the Local Government Board, and of the methods of procedure in special cases. This syllabus covers that of all the other five examining bodies. In each case the examination is written, oral and practical, and includes the analysis of one or more samples of air, water, and adulterated food or drugs.

THE DENTAL PROFESSION.

THE Dentists Act, which received Royal Assent last year, makes it compulsory for all would-be dentists to pass some approved examination unless they were in practice at the time the Act passed.

A young man intending to be a dentist must, at the outset of his career, pass a "preliminary examination," such as is required from fledgling doctors. That of the London University is in this, as in all other cases, the most difficult and the best.

The following are the conditions which must be observed to obtain the dental diploma of the Royal College of Surgeons. Candidates must be 21 years of age; must have spent the usual four years in the acquirement of professional knowledge, and must have attended at least one course each of lectures on Anatomy, Physiology, Surgery, Medicine, Chemistry, and Materia Medica; must have attended a special course on Anatomy of Head and Neck; must have performed Dissections for at least nine months; must have completed a course of Chemical Manipulation; must have attended Surgical Lectures two winter sessions, and must have attended two courses on Dental Anatomy and Physiology (human and comparative), Dental Surgery, Dental Mechanics, and one course on Metallurgy; must have been engaged for three years in acquiring practical familiarity with Mechanical Dentistry; and must have attended for two years at a dental hospital or the dental department of a general hospital. All the lectures and studies must be at schools recognised by the College.

The examination is written, oral and practical. The written examination comprises General Anatomy and Physiology, and General Pathology and Surgery, with special reference to the practice of the Dental Profession. The oral and practical examinations comprise the several subjects included in the curriculum of professional education, and are conducted by the use of preparations, casts, drawings, &c. Those who are already members of the College (and who are, therefore, fully qualified surgeons) will only be examined in matters specially pertaining to dentistry. A candidate whose qualifications are found to be insufficient will be referred back to his studies, and, except under special circumstances, will not be eligible for re-examination for six months. Examinations are held in January, June, and October. The fee for the diploma is ten guineas over and above any stamp duty. A ticket of admission to the Museum, Library, and College Lectures will be presented to each candidate on his obtaining the diploma. The latter document gives him the title of L.D.S. (Licentiate in Dental Surgery), and entitles him to registration.

Dental diplomas are also granted after examination by the Royal College of Surgeons of Edinburgh, the Faculty of Physicians and Surgeons of Glasgow, and the Royal College of Surgeons of Ireland. The curriculum required is almost identical in each case, and is directly copied from that organised by the London College. The fee is ten guineas in each case.

DENTAL SCHOOLS.

DENTAL HOSPITAL AND SCHOOL OF MEDICINE,
Leicester Square.

Total fee, 30 guineas. Dresserships and other appointments open free to all pupils who have entered for the entire course.

NATIONAL DENTAL HOSPITAL AND COLLEGE,
149 Great Portland Street.

Total fee, 25*l.* 4*s.* Dresserships open.

EDINBURGH DENTAL HOSPITAL AND SCHOOL,
DENTAL HOSPITAL, Glasgow.

Fee for practice, 10 guineas.

Dental education is also obtainable at most of the principal schools of medicine.

VETERINARY EDUCATION.

ANYONE may assume the title of Veterinary Surgeon. But the Royal College of Veterinary Surgeons grants the titles of Member and Fellow of the College. Candidates for Membership must have gone through a three-years course at one of the Veterinary colleges mentioned below, and pass three examinations (fee in each case three guineas). If the candidate is successful, he is registered as a M.R.C.V.S., registration fee one guinea. The candidate for Fellowship must produce a certificate signed by three Fellows as to his status in the profession, and of his having been in practice not less than five years; and must undergo an oral and written examination: fee on election, 15 guineas.

The following are the Veterinary Schools:—

ROYAL VETERINARY COLLEGE, Comden Town, London.

VETERINARY COLLEGE, Clyde Street, Edinburgh.

NEW VETERINARY COLLEGE, Gayfield, Edinburgh.

Fee for the whole course, 36 guineas, payable in advance. A winter course of Natural History is now provided.

VETERINARY COLLEGE, Buerleigh Street, Glasgow.

Candidates for appointments under the Army Veterinary Department must possess the diploma of the Royal College of Veterinary Surgeons, and shall undergo a further examination. Successful candidates receive a commission for 10 years; pay commencing at 250*l.* a year. At the expiration of the 10 years he may be dismissed, or may be selected for further appointments. After serving 12 years he is eligible for promotion to the rank of Veterinary Surgeon of the 1st class, pay commencing at 16*s.* a day, rising to 22*s.* a day after 15 years service as 1st Class Veterinary Surgeon. Army Veterinary Surgeons rank as Lieutenants, 1st Class Surgeons as Captains.

UNIVERSITY OF LONDON EXAMINATIONS.

DEGREES IN SCIENCE.

THE following are the examinations necessary for obtaining a degree in Science at the University of London, with hints and advice as to the best methods of preparing for the ordeal. The Calendar gives a full synopsis of the various examinations:—

MATRICULATION.

This examination in Arts and Elementary Science is the first that must be passed; a fee of 2*l.* has to be paid, and the candidate must have attained the age of 16 years. The examination is a written one, and embraces the following subjects:—

1. Latin; 2. Any two of the following Languages:—Greek, French, German, and either Sanskrit or Arabic; 3. The English Language, English History, and Modern Geography; 4. Mathematics; 5. Natural Philosophy; 6. Chemistry.

LATIN.

The Latin subject for each Matriculation Examination is only taken from one author, which is selected a year and a half previous to the examination.

The Latin Subjects for 1880 and 1881 are:—For January, 1880:—*Cicero*, De Amicitia and the Speech Pro Lege Manilia. For June, 1880:—*Sallust*, De Bello Jugurthino. For January, 1881:—*Ovid*, Metamorphoses, Book V., and Epistole ex Ponto, Book IV. For June, 1881:—*Virg*, Book V.

Questions in History and Geography arising out of the subjects of the book selected are set, and passages to be translated into English are also given. A separate paper contains questions in Latin Grammar, with easy sentences of English to be translated into Latin. Special stress is laid on accuracy in the answers to the Grammar questions, and on the correct rendering of English into Latin.

The book selected should of course be well studied, and also a History of Rome (Smith's by preference). To the Latin Grammar special attention should be paid. The best books to read for this part of the subject are Smith's Latin Courses (Parts I. and IV.). The Rules in the Latin Grammar and the Irregular Verbs should more particularly be studied.

Of the five languages mentioned, two of which must be selected, it is unnecessary to say anything concerning Sanskrit and Arabic, as they are so rarely taken. French and German are generally the two chosen, and no doubt these are the most useful to the scientific man, since in the present day publications in those languages must be read if one wishes to keep up with the tide of scientific progress.

FRENCH.

The paper in French contains passages for translation into English, and questions in Grammar, limited to the Accidence. The French Grammar should be very carefully studied, more especially in reference to the irregular verbs, and those words which clash somewhat in sound and meaning.

GERMAN.

The paper in German contains passages for translation into English, and questions in Grammar, limited (except when German is taken as an alternative for Greek) to the Accidence.

GREEK.

One Greek subject is selected by the Senate a year and a half previous to each examination, and consists of one book from either Homer or Xenophon. The paper in Greek contains passages to be translated into English, with questions in Grammar, and others in History and Geography arising out of the subjects of the book selected. Short and easy passages are also set for translation from other books not so selected. Special stress is laid on accuracy in the answers to the questions in Greek Grammar. The remarks made in connection with the subject of Latin apply in an equal degree to that of Greek, and should be referred to.

THE ENGLISH LANGUAGE, ENGLISH HISTORY (to the end of the seventeenth century), AND MODERN GEOGRAPHY.

English Grammar is an important subject in the Matriculation Examination, and, as the paper is generally a difficult one, good preparation is required for it. Of the grammars most suitable for use, perhaps that of Adams is the best for the purpose. A good History of England should be read. With regard to the subject of Modern Geography, if any events of special interest are occurring at the time in a foreign or distant country, the geography of that country, together with any information that can be gained respecting it, should be carefully got up.

MATHEMATICS,

Including: *Arithmetic*, to Fractions and Extraction of the Square Root; *Algebra*, to Simple Equations; *Geometry*, the First Four Books of Euclid.

The various books published on the subjects of the Mathematics are so numerous, and most of them so equally good, that it must be understood that the books about to be suggested for use are only mentioned in the event of the student not possessing any, and as being as suitable for the purpose as any others. Barnard Smith's "Arithmetic," Todhunter's "Algebra for Beginners," and Hamblin Smith's "Geometry," are sound works to read from for the three subjects.

NATURAL PHILOSOPHY,

Including the elements of *Mechanics*, *Hydrostatics*, *Hydraulics*, *Pneumatics*, *Optics*, and *Heat*.

Newth's "Natural Philosophy," which embraces all the matter required in this subject for the matriculation ex-

amination, with the exception of Heat, is the best book that can be read, the only part in it that should be omitted being that on Acoustics, which subject is not now required for Matriculation; Balfour Stewart's little book on Physics is as good as any for reading up the elementary knowledge required in Heat.

CHEMISTRY.

The best work to study for this subject is Roseoe's small "Chemistry." The knowledge required is limited to the Chemistry of the Non Metallic Elements, and particular attention should be given to the gases, the different modes of preparing them, their properties, and the determination of the weights of given volumes.

FIRST B.S.C. EXAMINATION.

This examination is held every July. Candidates are admitted to it one year after passing the matriculation examination (if a candidate matriculates in honours in January he is admissible to the 1st B.Sc. examination in the same year—that is, at the end of about six months). The fee for this examination is 5*l*. The following are the subjects required:—

PURE MATHEMATICS.

Arithmetic (with the nature and use of Logarithms), *Algebra*, *Geometry*, and *Trigonometry*.

For the Arithmetic it is immaterial which book is used; Barnard Smith's is, however, as good as can be selected for the purpose. Todhunter's "Algebra" is the best to use. The smaller one is sufficient, but it is better to work from his larger book, on account of the greater number of examples given in it. Special attention should be given to Permutations and Combinations, and to Arithmetical and Geometrical Progression.

The matter required in Geometry includes the Sixth and Eleventh Books of Euclid (which are best got up from Hamblin Smith's work); the mensuration of the simpler Plane and Solid Figures, the formulæ for which should be carefully remembered; and Conic Sections as far as the Equations and Properties of the Right Line and Circle, which may be read and worked at from either Todhunter's or Puckle's "Conic Sections."

Todhunter's small "Trigonometry" is sufficient to work at for that subject, particular attention should be paid to the Formulæ connecting the Ratios of two or more Angles, and to the Solution of Plane Triangles.

MIXED MATHEMATICS.

For this Magnus' "Lessons in Elementary Mechanics" is as good a book as any, being written more especially for this examination; the questions given are such as can be answered by simple mathematical methods.

INORGANIC CHEMISTRY.

The best work on Inorganic Chemistry to study is that of Fownes, or of Roseoe and Schorlemmer. Special attention should be given to the subject of determining the weights of products when known weights of substances undergo a special decomposition, and also to the subject of determining the volumes of given weights of gases. A Practical Examination in Chemistry is held, at which solutions or salts are given to be tested, each solution or salt not containing more than one metal and one inorganic acid.

EXPERIMENTAL PHYSICS.

Candidates are expected to show a general acquaintance with the Methods and Apparatus by which the leading principles of Physics can be illustrated and applied. Besides the General Laws and Forces of Nature and Properties of Solids Liquids, and Gases, *Acoustics*, *Heat*, *Magnetism*, *Electricity*, and *Optics* are included in this division.

For reading the Physics either Ganot's or Deschanel's book should be used; for Acoustics, Heat, and Light they are both equally good; but for Magnetism and Electricity Guthrie's book, belonging to Collins's Advanced Science

Series, should be used; in working at these two last-mentioned subjects special study should be given to Ohm's and Joule's Laws.

GENERAL BIOLOGY.

The subject of Biology may be divided into Botany and Zoology. For the botanical portion of the examination either Henfrey's "Botany" or Thomé's "Botany" (edited by Bennett) should be read, the portion of the book devoted to Systematic Botany being omitted; the study of the zoological portion of the subject is best commenced with a small and easy reading-book, such as that on General Biology in Collins's Elementary Series, after which Huxley and Martin's work on Practical Biology should be thoroughly studied; the few things not contained in this work and required in the examination should be looked up in Huxley's work on the Invertebrata. A Practical Examination in Biology is held, at which candidates are expected to examine by the microscope, to dissect, and describe specimens of the plants and animals referred to in the preceding Syllabus; to prepare for this part of the examination the student should work practically on the plants and animals, using Huxley and Martin's work as his guide.

THE SECOND B.S.C. EXAMINATION.

This examination confers the degree of Bachelor of Science on the successful candidate; it takes place once a year, in October, and the First B.Sc. Examination must have been passed at least one year previously; the fee for the examination is 5*l*. Nine subjects are mentioned in the Syllabus, but three only have to be selected by the candidate. The subjects are:—Pure Mathematics, Mixed Mathematics, Experimental Physics, Chemistry, Botany, Zoology, Animal Physiology, Physical Geography and Geology, Mental and Moral Science.

DOCTOR OF SCIENCE EXAMINATION.

This examination is held once a year, in June. Candidates are admitted to it after the expiration of two academic years from the time of their obtaining the degree of B.Sc. The fee for this examination is 10*l*. Each candidate has to select a branch of knowledge which contains a principal subject, and a subsidiary subject or subjects. The Senate desire to make it understood that the candidate will be expected to be so fully conversant with the principal subject he may select, as to be able to go through any examination test (whether theoretical or practical) of his acquirements in it that can be fairly applied.

SCIENCE AND ART DEPARTMENT, SOUTH KENSINGTON.

By means of grants to teachers, and by conducting examinations, this department assists in the formation of classes for teaching elementary science throughout the country. Any person passing the advanced or honours' stage of the examination in any subject, and applying to the Department, is recognised as a qualified teacher of that subject, and if he comply with further regulations, he will be entitled to receive money grants on all pupils who pass the examination under his care. Examinations are held by the Department in any place where there is a class; in large centres where there are many classes, a local secretary is appointed, who presides at all the examinations. The calendar of the Department, published yearly at 6*d*., gives full syllabuses of the subjects (which include all branches of natural science), lists of the places where classes and examinations are held, and detailed regulations for the formation and conduct of classes. These examinations afford very useful practice to students, and are a good stimulant to promote earnest and definite study. Letters addressed to the Department need not be stamped.

SCIENCE SCHOOLS.

LEEDS MECHANICS' INSTITUTION AND LITERARY SOCIETY.

Cookridge Street, Leeds.

Evening classes are conducted by Mr. George Ward, F.C.S., and Assistants, in the following subjects:—

FEES PER SESSION (Payable in Advance).		Middle Class Students	*Artisan Students
		£ s. d.	£ s. d.
Inorganic Chemistry (Elementary Course—Thursday)	0 15 0	0 7 6	
" " (Advanced Course—Friday)	0 15 0	0 7 6	
Organic " Tuesday	0 15 0	0 7 6	
Laboratory Course (Tuesday and Thursday) two evenings in the week	2 0 0	1 7 6	
" " One evening in the week	1 1 0	0 15 0	
Metallurgy Friday	0 15 0	0 7 6	

* Pupils paying artisan fees will be expected to attend not less than twenty-five times during the session, and to present themselves for the next May Examination in connection with the Science and Art Department, or failing this, to pay the advanced fees.

THE YORKSHIRE COLLEGE, LEEDS.

This institution is intended to promote scientific education among the manufacturing classes. There is a special department for instruction in matters concerning the Textile Industries, which is endowed by the London Clothworkers' Company. Besides these, instruction is given in Mathematics, Experimental Physics, Chemistry—Theoretical and Practical, Geology and Mining, Biology, Zoology, Civil and Mechanical Engineering, Classical and Modern History, and Literature and Botany. Various scholarships are offered, and the College holds endowments for providing courses of lectures in other towns. The Clothworkers' Company, London, have endowed a Dyeing Department, which will commence work early in 1880. The title of Associate in Physical Science is conferred on students who attend classes in not less than three of the following departments for two entire sessions each, and who pass a special examination in each class at the end of their curriculum. The departments are: Mathematics, Physics, Chemistry, Geology, Biology, and Civil and Mechanical Engineering. Entrance fee to the college, 1*l.* 1*s.*; use of library, 2*s.* 6*d.* per session. Each class has separate fees. The College Calendar (6*d.*) contains full information as to classes, fees, &c. The fees for the laboratory course of chemistry are 17 guineas a session.

GERMAN UNIVERSITIES AND CHEMISTRY.

THERE are exceptional advantages for students of chemistry in cases where the time and money can be spared in the devotion of a year or so to study in a German university. Not that chemistry is so much better taught there than here, for that is not the case; but the well-grounded student can find there professors who have acquired a special reputation in almost any branch of the science to which he may especially prefer to direct his future attention. Besides this, the acquirement of an intimate acquaintance with the German language will prove in future of daily convenience and advantage to the theoretical and practical chemist.

A correspondent of the *Scientific American* gives some useful information respecting the German universities, in regard to the teaching of chemistry, and we gladly avail ourselves of it. For inorganic chemistry the student would do well to choose Wiesbaden or Heidelberg, and at either place he would add to scientific advantages the charms of beautiful natural scenery. At the former place Fresenius teaches most thoroughly his methods of analysis; at the latter place Bunsen teaches his methods of analysis, including the analysis of water and gas, the use of the spectroscope and his flame reactions, as well as the methods of separating and purifying the rarer metals, cerium, lanthanum, didymum, the metals of the platinum group, selenium, thallium, and other interesting bodies, by methods peculiarly his own. The well-known perfection of all Bunsen's methods, his great skill and dexterity of manipulation, his ingenious devices, and the great simplicity of the man as well as of his methods, recommend him especially to any one who is fitting himself for a teacher. The writer we have referred to asserts, from experience, that no man's education

is complete without spending one term with Bunsen in his quaint old laboratory in picturesque little Heidelberg.

The student of organic chemistry has a much larger number of laboratories from which to select. The beginner, who has to learn organic analysis and the preparation of organic compounds, will find what he requires in nearly any of the larger universities. Berlin and Strassburg are both highly recommended for this purpose, nor is Bonn far behind them, so that the student may now allow himself to be influenced by other causes. Neither Berlin nor Strassburg is an altogether attractive residence in summer, yet in order to hear Prof. A. W. Hofmann's excellent lectures upon organic chemistry it is necessary to spend the summer in Berlin.

The advanced student who wishes to begin a research on some organic body may choose between Hofmann or Liebermann in Berlin, Kolbe in Leipsic, Hübner at Göttingen, Fittig at Strassburg, Bayer at Munich, Meyer in Zurich, Kekule at Bonn, or Wislizenus at Würzburg. The first mentioned is to be preferred for a research upon the so-called aromatic group; the second for colours and dyes; the last named, as well as Prof. Ad. Wurtz in Paris, devote their attention to the fatty bodies. Thus a man who has already selected his subject will select his professor accordingly. A man in search of a subject, and wishing to receive a large amount of personal attention, will not regret having begun his studies at Berlin. At Leipsic and Bonn the student gets but little attention from the professors.

For technical chemistry there are a large number of polytechnic schools in all parts of Europe. One of the best of these is at Würzburg, where Rudolph von Wagner is professor; another is at Zurich; a third at Berlin. This does not exhaust our list, but we mention these because at each of the above cities there are excellent universities, and a student may enjoy the advantages of both at the same time.

As most students of chemistry will wish to hear a few lectures on mineralogy we may state that no better professor can be found than Rosenbusch at Heidelberg. During the summer crystallography is very carefully taught at the same place by Prof. H. Kopp, while Prof. Quincke lectures on electricity and magnetism, and Prof. Fitzer on botany, making Heidelberg a very attractive place to spend the summer at. Prof. Groth at Strassburg and Klein at Göttingen are also distinguished mineralogists.

Each of the above-mentioned universities, of course, has its own professor of physics, the most celebrated being Helmholtz and Kirchhoff at Berlin. The chemist, however, finds better facilities for the study of physics in Paris than elsewhere. The laboratory of Prof. Desains in the Sorbonne is fitted up with the best apparatus, and students may spend from four to eight hours per week there at the nominal charge of twenty francs per year.

In the German universities the year is divided into two terms, called "semesters," one extending from November 1 to March 1, the other from May 1 to August 10, separated by long vacations. The student who leaves home in June may arrange to hear a few lectures in the summer semester at Heidelberg, in order to accustom the ear to the language. The long autumn vacation can be used for studying German (in Hanover) if the student is not already quite proficient therein, or for foot tours through Switzerland, the Black Forests, Tyrol, or Thuringia.

Heidelberg and Bonn contain so many English-speaking students that the opportunity to practise speaking German is very limited. For this reason some prefer to spend a term at some less noted university, like Breslau or Tübingen.

The foreign student can enter any German university upon showing his passport and paying a small fee. At Berlin men over 30 years of age cannot be matriculated, but can readily obtain a permit to attend lectures and enjoy other privileges of the university. The fees for the laboratory vary from 4*l.* to 5*l.* per term. Lectures cost from 1*l.* to 2*l.* per term. The student may select such lectures as best suit his purpose, and he pays only for those which he hears. In every respect perfect freedom is allowed the student.

A DRUGGIST, recollecting the Latin proverb, *In vino veritas*, has put up this inscription upon his soda fountain: *In soda sanitas.*

Trade Notes.

WE should have stated, in our description of Messrs. Evans, Lescher & Webb's new warehouse last month, that the architect was Mr. Aston Webb, of Duke Street, Adelphi.

* *

MR. C. C. BELL, of Egremont, who for some time represented Messrs. Sumner & Co., of Liverpool, has taken the business of the late Mr. Capes, of Epworth. Mr. Brett, of Leicester, valued for the vendor, and Mr. Sumner for the buyer.

* *

MR. R. B. HARRINGTON, late of Rayleigh, Essex, has taken the business of Mr. Nutman, of Belgrave (who now carries on the wholesale), Leicester. Mr. J. D. Smith, of Norwich, valued for the buyer, and Mr. Brett, of Leicester, for the seller.

* *

REVIVAL OF TRADE.—Mr. Hickisson, maker of the "Daughter of the late John Bond's Marking Ink," informs us that at his factory and warehouse no business is now transacted on any Saturday throughout the year, the firm giving all hands a free day.

* *

WE have received a sample of a very fine Norwegian cod-liver oil from Messrs. Mawson & Swan, of Newcastle, who are importers, and who offer it, as will be seen from their advertisement, at an unusually low price to buyers of one or more barrels. The sample before us is very pale in colour, and sweet in flavour.

* *

IT will be noticed from an advertisement that Messrs. Jewsbury & Brown have advanced the price of their tooth paste. This is probably in consequence of some retailers showing that they did not care for so much profit as they previously obtained from the sale of this and similar proprietary articles.

* *

MESSRS. CORBYN, STACEY & Co. have published a new edition (the fourteenth) of their "Notes on Drugs, Chemicals, and Pharmaceutical Preparations." In this pamphlet they give particulars of *Adonis vernalis*, Caffeine citrate, Duboisia, Euonymin, Kava-kava, Ndilo oil, and about a hundred other remedies of recent introduction, and details of which are not to be found in the usual text-books. They are willing to send a copy to any chemist who asks for it.

* *

LAWTON'S ABSORBENT COTTON is a special manufacture of cotton wool, imported from America, and offered to the English medical profession by Messrs. S. M. Burroughs & Co., of Snow Hill. Dropped in water it absorbs liquid so rapidly that it sinks almost immediately. This property makes it very valuable in dressing wounds, applying lotions, soaking up discharges, and so on. It also answers well for filtration. It is sold in packages of 2 oz. and upwards.

* *

THERE is to be an extraordinary general meeting of the shareholders of Price's Patent Candle Company at the City Terminus Hotel, Cannon Street, on Thursday, September 25, at two o'clock, for the following purposes, viz.:—1. "To declare a dividend on the preference shares for the half-year ending June 30, 1879. 2. Pursuant to a requisition from 12 shareholders holding in the aggregate more than 500 shares, 'to consider the propriety of, and to decide upon, the appointment of a committee of shareholders to investigate the affairs of the company.'"



[The following list has been compiled expressly for THE CHEMIST AND DRUGGIST by G. F. Redfern, Patent Agent, successor to L. de Fontaine-moreau & Co., 4 South Street, Finsbury, London; and at Paris and Brussels.]

Applications for Letters Patent:—

- Anthrachinon.**—No. 3180.—J. A. Dixon.—A communication from W. Meister, Dr. E. Lucius and Dr. A. Brüning, chemical manufacturers, all of Hoechst-am-Main, Germany. Improvements in the manufacture of anthrachinon, and in the regeneration of chromic acid in the said manufacture, and in other manufactures. Dated August 7, 1879.
- Bottles.**—No. 3294.—N. J. Entler, medical doctor, and R. C. Price, merchant, both of Dublin. An improved construction of bottle for the purpose of preventing the fraudulent use of same. Dated August 15, 1879.
- Bottle-stoppers.**—No. 3217.—H. Kitching, of Goole, Yorkshire. Improvements in stoppers for bottles. Dated August 11, 1879.
- Canisters.**—No. 3552.—C. Cheswright, of Parkhurst Road, London. Improvements in canisters or other like receptacles. Dated September 4, 1879.
- Caustic Alkalies.**—No. 3195.—W. L. Wise.—A communication from Dr. F. Löwig, of Goldschmieden, near Deutschlissa, Silesia. Improvements in preparing and producing caustic alkalies and preparations of alumina, and in purifying preparations of alumina after their employment in clarifying juices or fluids. Dated August 8, 1879.
- Filters.**—No. 3246.—B. Harlow, of Macclesfield, Cheshire, engineer. Improvements in the construction of filters, also applicable to existing filtering apparatus. Dated August 12, 1879.
- Labelling Bottles, &c.**—No. 3504.—P. Collas, of Budge Vale, Guernsey. Improvements in machines for labelling bottles, tins, and packages. Dated September 1, 1879.
- New Article of Food.**—No. 3240.—J. W. Hayes, of Upper Barnsbury Street, London, manufacturer. A new or improved article of food. Dated August 12, 1879.
- Oxidising Alkali-makers' Vat Liquors.**—No. 3193.—W. Weldon.—A communication from Dr. Pauli, of Rheinau Chemical Works, Mannheim, Germany. Improvements in oxidising alkali-makers' vat liquors. Dated August 8, 1879.
- Phosphates.**—No. 3196.—S. G. Thomas, of 3 Queen's Road Villas, Wandsworth Road, London. Improvements in the manufacture of phosphates. Dated August 9, 1879.
- Separating Solid from Liquid Matters.**—No. 3454.—C. H. Roeckner, of Newcastle-on-Tyne. Improved means and apparatus for separating solid from liquid matters, part of which is applicable to other purposes. Dated August 27, 1879.
- Sulphur.**—No. 3194.—W. Weldon, of Rede Hall, Burstow, Surrey. Improvements in obtaining sulphur from a bye-product of the manufacture of alkali. Dated August 8, 1879.
- Treating Starch Residues.**—No. 3481.—A. Manbré, of 14 Walbrook, London, E.C., manufacturing chemist. Improvements in treating starch residues. Dated August 29, 1879.

Letters Patent have been issued for the following:—

- Bottle-stoppers.**—No. 893.—E. Bredt, of London, merchant. Improvements in or applicable to the stoppering of bottles for containing aerated and other liquids under pressure when internal stoppers are used. Dated March 6, 1879.
- Bottle-stoppers.**—No. 2628.—E. W. Grimwade. A communication from L. Le Breton Mount, of Melbourne, Victoria, glass bottle manufacturer. Dated June 30, 1879.
- Colouring Matter.**—No. 4914.—F. Wirth. A communication from W. Meister, E. Lucius, doctor of philosophy, and A. Brüning, doctor of philosophy, all of Höchst-on-the-Main, Germany. Improvements in colouring matter, and in the manufacture of the same. Dated December 2, 1878.
- Covering Drums or Casks containing Caustic Soda, &c.**—No. 2212.—F. H. Mort, of Widnes, Lancashire, alkali manufacturer. Improvements in closing or covering drums or casks for containing caustic soda and other like substances, and in the apparatus employed therein. Dated June 4, 1879.
- Dentists' Chairs.**—No. 847.—W. R. Lake.—A communication from G. W. Archer, of Rochester, N.Y., United States, manufacturer. Improvements in adjustable chairs, chiefly designed for the use of dentists and hairdressers. Dated March 3, 1879.

Filtering Saccharine Solutions.—No. 2120.—W. P. Thompson:—A communication from G. C. W. Beleber, of St. Louis, Missouri, United States, sugar refiner. Improvements in and appertaining to the process of, and apparatus for, filtering saccharine and other solutions or liquids. Dated May 28, 1879.

Formation of Chemical Compounds.—No. 698.—H. J. Smith, of Glasgow, North Britain, doctor of philosophy. An improved mechanical contrivance to be used in processes involving the formation, decomposition, and oxidation of chemical compounds or mixtures. Dated February 21, 1879.

Medicinal Rhubarb.—No. 786.—J. W. Swan and B. S. Proctor chemists, Newcastle-on-Tyne. Improvements in medicinal rhubarb and its preparations. Dated February 26, 1879.

Purification.—No. 1970.—J. Fordred, of Tottenham, Middlesex, technical chemist. Improvements in the treatment and purification of cod-liver oil. Dated May 16, 1879.

Reducing Alkaline and Earthy Sulphates to their Elements.—No. 895.—H. E. Newton:—A communication from E. A. G. Bong, of Paris. An improved process and apparatus for reducing alkaline and earthy sulphates and chlorides to their elements. Dated March 6, 1879.

Securing Bottles in Stands.—No. 765.—M. Chapman, of Charterhouse Buildings, Goswell Road, London, manufacturer. Improved means of securing liquor or other bottles or receptacles in stands, and preventing access to the contents thereof. Dated February 25, 1879.

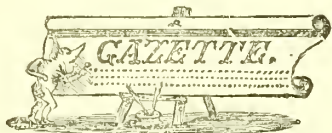
Sulphide of Zinc.—No. 1131.—T. Griffiths, of Birkenhead, Cheshire, and J. Cawley, of Deptford, Kent, chemist. Improvements in the manufacture or production of sulphide of zinc. Dated March 22, 1879.

Specifications published during the month:—

Postage 1d. each extra.

1879.

- 64. A. M. Clark. Apparatus for obtaining infusions or decoctions. 6d.
- 73. G. H. Comfort. Nutritive effervescent drink. 2d.
- 91. A. Martin. Match or pill box. 4d.
- 101. G. W. Von Nawrocki. Safety appliances for pouring fluids from bottles, &c. 2d.
- 179. W. R. Lake. Enriching phosphates of lime. 6d.
- 189. A. H. Allen. Treatment of sulphurous gases. 4d.
- 218. C. F. Wood and J. Wilkinson. Stopping bottles. 6d.
- 251. H. E. Newton. Filter-presses. 6d.
- 281. W. Morgan-Brown. Preserving food. 2d.
- 330. E. Perrett. Apparatus for filtering liquids. 6d.
- 335. S. S. Bosworth. Soap-boxes, &c. 2d.
- 339. W. Weldon. Manufacture of alkalis, &c. 2d.
- 447. C. Casthelaz. Colouring matters. 4d.



BANKRUPT.

STEPHENS, GEORGE THOMAS, 27 St. Owen Street, Hereford, chemist. August 19.

DIVIDENDS PAYABLE.

TURNBULL, ADAM, Glasgow, manufacturing chemist. First, at Barr & Carstairs, 85 Queen Street, Glasgow, on September 22.
WILKINSON, WILLIAM, Clumman Gate, Chesterfield, chemist. First, of 2s. 6d. at E. B. Brownlow's, 22 Soresby Street, Chesterfield.

PARTNERSHIPS DISSOLVED.

BELL & MOSSOP, Bradford, surgeons and apothecaries. May 31.
HANSON & DAY, Savile Town, Dewsbury, manufacturers of Hanson's Royal Indigestion Mixture and Erysipelas Lotion. August 18.
REID, GEORGE, & SONS, chemists, druggists, and merchants, 45 Union Street, Aberdeen. July 31.
ROPER, ROBERT, SON & CO., Sheffield, medicine vendors and general dealers. September 4.
SHERRATT & CO., Churney Street, Rochdale Road, Manchester, manufacturing chemists. July 22.
SMITH BROTHERS, Sidal, Halifax, manufacturing chemists. August 9.
SPENCE, J., BEIGER & CO., 31 Lombard Street, London, and Manchester, and Glasgow, chemical, mineral, metal, and colonial merchants. August 31.

LIQUIDATIONS.

ANGELL, ARTHUR, jun., 4 Portland Terrace, Southampton, analytical chemist. August 21.
FIZGERALD, JOHN, South Bank, chemist, &c. August 27.
GREEN, STEPHEN, 75 Bolton Road, Blackburn, drysalter and patent medicine vendor. August 7.
JACKSON, JABEZ WILLIAM, Market Street, Crewe, chemist and seedsman. September 6.
KIRBY, JOHN HENRY, 124 Wheeler Street, Birmingham, chemist. August 18.
OSTLE, HENRY, Wotton Park, Durham, druggist and grocer. July 31.
POPE, JOSEPH, 7 Baker Street, Green Street, Bethnal Green, and 166 Globe Road, Mile End, late trading as W. Wilkinson & Co., at 143 Globe Road, paper box manufacturer. August 22.
ROTHERY, ROBERT, Hightown, Liversedge, chemist, late trading in partnership. August 8.
SCRUTTON, PETER DICKINSON, Long Bennington, Lincoln, chemist and grocer. August 5.
WILSON, HENRY, 8 Ardwick Green, Manchester, chemist. August 5.

Clippings and Pickings.

CLEANLINESS is generally regarded as a virtue; but in Germany they call a bath "bad," and even in France they look upon it as a "bain."

THE old gentleman who spent a fortune in endeavouring to hatch colts from horse-chestnuts is now cultivating the egg-plant with a view to raising chickens from it.

TO PRESERVE ERGOT.—Dr. Merrut (in the *New York Medical Journal*) recommends the addition of 5 per cent. of benzoin to powdered ergot, by which means he has kept the powder in perfect condition for 14 months in a bottle covered with paper.

SWEET LITTLE BUTTERCUP.—

"Nomen mihi Ranuncula, dilecta Ranuncula,
Nominis rationem hujus mcherele nescio,
Attamen sum Ranuncula, parvula Ranuncula,
Blandula Ranuncula ego."

BRITISH ASSOCIATION PRESIDENTIAL ADDRESS.—Mr. John Evans, F.R.S., is credited with the following masterly summary of Dr. Allman's address to the British Association:—

From life to consciousness the chasm
Cannot be bridged by protoplasm.
All flesh is grass, but chlorophyll
Can all man's duties not fulfil.

A QUACK'S FORTUNE.—On all our walls we have seen from our earliest infancy, in characters only too legible, the inscription "Secret Diseases. Treatment of Dr. Ch. Albert." This so-called Ch. Albert was a certain *Chammonat*, who died in 1848, and who, as Dr. Pioget, has introduced advertising into medicine and made a rapid fortune. When he wished to sell his connection the price based on the returns was so high that it had to be bought by a company. It is still held in shares, dividends are paid, and salaried assistants hold consultations and prescribe medicines. The only modification made in the placards has been to substitute treatment of Dr. Ch. Albert for treatment by Dr. Ch. Albert. The great man's successors, however, do not hesitate to use the name of Ch. Albert in any documents they have to sign.—*La Practicien*.

EXTRAORDINARY LENGTH OF ARM.—The *Daily Telegraph* is responsible for the following monstrosity:—"A young man in Paris was in the habit of cleaning out the stem of his pipe with a knitting-needle, when, by some mischance or other, he ran the point of the instrument into his finger. On the steel lay nicotine, and this, mingling with the blood, which flies through the system at the rate of about 12 inches a second, quickly spread in the arm, until it became necessary to amputate the limb in order to save the smoker." Twelve inches a second is 20 yards a minute. The surgeon could hardly get his amputating instrument ready in less than five minutes, so that he must have cut off more than 100 yards of arm to intercept the poison on its way to the heart.

COURT PLASTER.—The *Students' Journal* thinks it important that everyone should know how to make court plaster, as the knowledge may be of service on an emergency when it cannot be bought, so it proceeds to tell its readers to soak isinglass in warm water for three days, then spread the solution on silk, dry, spread another coat, dry, and finally spread two or three coats of balsam of Peru. The man with his finger cut waiting for the reader of the *Students' Journal* to get a bit of plaster ready might as well take a journey to Rome and get sculptured as an image of Patience.

PETROLEUM, THE WORLD'S AXLE-GREASE.—A gentleman who has been interviewed by a Western newspaper reporter as to the result of his observations during a recent visit to the oil regions has ventured an opinion, based upon information gained during several days' observation, that the Government should promptly interfere and stop further boring and pumping. He is quite certain that this oil was accumulated in the strata whence it is drawn for the purpose of lubricating the bearings of the earth's axis, and that when this lubrication is exhausted the world will cease to revolve. We are not yet prepared to accept this theory, with all that it implies; but really, if such a thing is possible, the matter ought to be looked into. If it had been thought of soon enough, we might have had a Congressional committee to sit during the summer at Cape May or Long Branch, with instructions to report during the winter season. Perhaps the high temperatures from which we are now suffering are due to hot boxes somewhere along the earth's axis.—*New York Metal Worker.*

POISONING IN FRANCE.—The *Standard* says:—"At Pressigny, in Poitou, lives a family named Robouam, who have been sorcerers from father to son, and mother to daughter, for generations. . . . The most powerful representative of the family at present is a 'female' witch (who ever heard of a male 'witch'?). She undertook to cure a woman of a tumour, and applied a plaster to it. The same night the patient was seized with violent vomiting. She swelled up [?] from head to foot, became wholly paralysed, and expired after intense suffering." The plaster was composed chiefly of arsenic, and the sorceress has been sentenced to a fine of 50*l.* and one year's imprisonment.

MR. A. P. LUFF, of the Central School of Chemistry and Pharmacy, took first place in the first class honours examination for chemistry in the recent first B. Sc. examination at the University of London.

EUCALYPTUS GLOBULUS IN GUERNSEY.—The *Journal of Horticulture and Cottage Gardener*, for August 21, gives a good sketch of a branch from a eucalyptus tree, 53 feet high, now in full flower in Guernsey. In the Channel Islands the trees have stood the winter well, while nearly all those in England have succumbed. Miss D'Auvergne, of St. Jacques, last year felled a tree 20 years old and 60 feet high. It had three times lost its leader, once as much as 8 feet; it grew 20 feet in its first 20 months.

EXCHANGE COLUMN.

TERMS.—Announcements are inserted in this column at the rate of one halfpenny per word, on condition that name and address are added. Name and address to be paid for. Price in figures counts as one word.

If name and address are not included, one penny per word must be paid. A number will then be attached to the advertisement by the Publisher of THE CHEMIST AND DRUGGIST, and all correspondence relating to it must be addressed to the "Publisher of THE CHEMIST AND DRUGGIST, Colonial Buildings, Cannon Street, London, E.C.," the envelope to be endorsed also with the number. The Publisher will transmit the correspondence to the advertiser, and with that his share in the transaction will cease.

Deposit of Money.—In order to ensure safety we offer the following system:—The purchaser of anything advertised in the Exchange Column may remit the amount to us. We shall acknowledge receipt to both parties by post-cards, and shall only pay it away on the advice of the remitter. Whether returned to him or paid to the seller, we shall charge a commission of 2½ per cent. on any money thus passing through our hands, and not less than 6*d.* on any single transaction. This arrangement should entirely prevent any cause of complaint or dissatisfaction arising out of this section of THE CHEMIST AND DRUGGIST.

FOR DISPOSAL.

Tamar Indian (Grillon), half-dozen; what offers? 3*9*/2*s.*
Half-gallon tincture press with feet, price 10*s.* 6*d.* Butler, Chemist, Tunbridge Wells.

Chemist's fittings and stock, very cheap. 40/2*s.*
Two guinea papyrograph, almost new, for one guinea. Orchard, Salisbury.
Bottles, modern stoppered and labeled pints; cheap. 3*9*/6.
A large stock of Myers' cattle spice, at half cost price. Fortune, Anstruther.
Seven 40-lb. tins bals. copaiba, and three original cans of oil anisi; offers requested. Starton & Sons, Peterborough.
A new double-barrel central breech-loader, 12-gauge, side lever, snap action. W. Cannell, Wolverhampton.
Will send *Pharmaceutical Journal* weekly for *Chemist and Druggist* monthly. Cottle, Watford.
Wanted to exchange, several small lots of over-plus specialties for drugs, &c.; list sent on application. J. Calow, Lingdale-in-Cleveland.
A few gross gutta-percha sticks, retail 3*d.*, 5*s.* 6*d.* gross, cash with order; sample, 1*d.* Lockwood, Chemist, Sheffield.
Shop bottles, fittings, specie jars, patents, mirror, dry colours, Cuff's oils, Long's magnet lotion, &c.; list on application. 41/3.
Eight cwt. ammon. carb., 6*d.* per lb.; 40 lbs. American mint, 10*s.* per lb. H., 196 Union Street, Oldham.
Sponge-case, in splendid condition, Maw's make, as fig. 92, price 6*l.* 10*s.* Longley, North Street, Leeds.
Portable microscope, by Swift, London; 1½ inch lenses; cost 6*l.*; scarcely used; price 3*l.* 10*s.* 3*6*/9.
Thorley's food, this year's make, in 14, 28, or 56-lb. boxes, 20*s.* cwt. Hill, Regent Street, New Swindon.

Immediate disposal, every requisite for mechanical dentistry; good condition. Watson, Chemist, Rochester.
Cheap.—Stoppered bottles, mahogany drawers, bent-glass case, ointment jars, fittings, of first-class chemist's shop. 52/26.
Cans—5, 6, 10, and 12 gallon—tin and iron; sound and good; suit tar distillers, chemicals, or oils; cheap. E. M., 224 Rhodeswell Road, Limehouse.
About 6 stons fine Yorkshire honey, 1878; strained; sample free. Six 3-gallon tins Woolfall's liquid paints. What offers? 33/2*s.*
Several boxes of Phillipson & Co.'s transparent glycerine soap, in 4*d.* and 6*d.* tablets; 20 per cent. off trade price. J. M., 24 Cable Street, Liverpool.
One pound of finest Mitcham oil of lavender, price 8*s.*, bottled by Hearon, Squire & Francis. Apply, J. Watson, Rose Corner, King Street, Norwich.
Copying apparatus, no press required, takes 50 copies in five minutes; price 6*s.*; sample copy free, perfect order. Herbert Kemp, Horncastle.
American ice-cream soda water apparatus; original price 120*l.* As the room it occupies is wanted, no reasonable offer will be refused. Baildon & Son, Edinburgh.
Tincture wide-mouth ep. oil syrup bottles, ointment and pill jars, scales, pill machine, and oddments; secondhand, cheap. Lewis, 19 Evesham Street, Redditch.
One 24 4-grain pill machine, marble slab, two 24 5-grain, one 30 5-grain; one 18 5-grain, all in good condition. What offers? S., 24 North Street, Exeter.

Pharmaceutical Journal, from 1811 to 1872, bound; also duplicate copies of Pereira's "Materia Medica," to be sold cheap. Smith, Chemist, Ludlow.

What offers?—Medicine chest, Maw's fig. 4, perfect condition throughout; 12 ozs. ol. cinnaam. ver., warrantable, 5s.; four 2-gallon pear-shaped earbays, cheap; four upright ditto. Smith, Chemist, Amersham.

Sauce.—A chemist who has given up business has 22 gallons prime sauce for sale, equal to any made in Worcester; will also sell formulae. Samples on application to "Chemist," Advertiser Office, Worcester.

To Manufacturers of Bay Rum.—For disposal several pounds of genuine bay oil, imported from St. Thomas, W.I., fine sample; what offers? R. K. Kermode, Chemist, Castle-town, Isle of Man.

Copper's parlour printing press, by Holtzapfel, with about 80 lbs. assorted types, and all requisites for printing chemists' labels, handbills, &c.; also *Chemist and Druggist*, June, 1871, to end of 1875; what offers? Henry Bartlett, Colyton.

Seven 1 cwt. bags Russian soldiers' biscuits, capital feed for pigs, dogs, poultry, &c., free on rail, at 6s. 6d. per cwt.; also about 1½ cwt. Casewell's thriving spice for cattle, good condition, price 15s. per cwt. Robinson, M.P.S., Alfreton.

About 3 cwt. Faengreck, recently ground but heated; 3 Bird's soap bubble apparatus; dozen Leroux silver ink; quantity Row's embrocation (Torrington); any offers for part or whole or exchange. Chave, Chemist, Hereford.

One swan earbay, 30 inches high, inclusive; handsome new specie jar, with ornamental gilt-glass cover, 22 inches high; all the bottles and jars of a small shop, in good order; pill machine, tincture press, scales; particulars for stamp. Floyd & Hicks, Bury St. Edmunds.

Pulv. Lini Opt., 18s. per 100 lbs.; pulv. lini, 12s. cwt.; liq. ammon. fort., 4½ lbs.; black lead, 1d. packets, 1s. 9d. gross box; calc. chlorata, 6 cwt. casks, 7s. 3d. cwt.; 65-gal. oil eastern, 20s.; 80-gal. ditto, 14s.; tooth-foreeps, new, 2s. 6d. pair; scales, in box, 1s. J. W. Adams, 54 Oxford Street, Salford.

Fifty dozen shop bottles, 8s. doz.; fancy jars, as figs. A and D, 7s. 6d., worth 13s.; very elaborately labelled in white glass and turquoise blue; 7-foot wall case with cupboard under, as fig. 200, 147.; paper stands, 8s. each; blue ointment jars, new, 2s. per cent. under Maw's list; pink and gold ointment jars, &c., &c. E. Natali, 207 Old Street, London, E.C.

8-ft. dispensing-screen, as Maw's fig. 165, with silvered plate-glass back, 91.; 4-ft. bent plate-glass counter-case, fig. 16, 50s.; 6-ft., as fig. 97, 51.; 6-ft., as fig. 99, 61. 10s.; a 4-ft., as fig. 95, 90s.; 3 ft. 6-in., as fig. 100, 65s.; several as fig. 100, but without shelf, 3-ft. long, 3-ft. 6-in. long, 4-ft. long, 5-ft. 2-in. long; 6-ft., as fig. 104, 71.; 6-ft., as fig. 105, 71.; tooth-brush cases, fig. 52, and a bent plate-glass one, at 35s.; French scales and grain scales, &c. E. Natali, 207 Old Street, almost opposite Great Eastern Street, E.C.

Very elaborate dispensing-screen, glass case at each side, with a silvered plate-glass centre, and marble slab in front, the cases fitted with shifting shelves and silvered plate-glass backs at back of screens, the entire length fitted with three shelves for dispensing bottles; on top of cases very handsome tablets, "Dispensing" "Department," 81. 10s., each 6 feet long and 7 feet long; a 14-feet 6-inch Spanish mahogany cupboard, plate-glass doors, 101., a bargain. E. Natali, 207 Old Street, almost opposite Great Eastern Street, London, E.C.

5 lbs. dec. aloes co. cone.; 2 4s. 6d. Woodhouse's rheumatic elixir; 10 lbs. bartschorn shavings; 1 lb. p. stanni oxyd.; 4 lbs. dec. senega co. cone.; 6d. knife polish; 6d. and 1s. chloralum; 4s. 6d. Wilkinson's magic drops; 6d. Jackson's claggine; 1s. and 2s. Walton's roup pills; 1s. and 2s. 6d. Walton's tonic paste; 1s. Butler's rosemary hair cream; 1d. packets J. W. Thorley's cattle food; 6d. boxes wafer paper; 4s. 6d. Savory & Moore's pancreatic emulsion; 4d., 6d., and 1s. gums, with tops and brushes; all fresh; what offers for cash or exchange. A. Woodecock, Magdalen Street, Norwich.

Sponge-case, fig. 92, plate glass, 51.; desk, and glass case in front, fig. 21 Maw's list, 65s.; ditto ditto, fig. 39, 45s.; 4-ft. 6-in. dispensing-screen, 31.; ditto ditto, 40 in. long, 40s.; a very handsome dispensing-screen, 6 ft. long, as Maw's fig. 78, labelled "Dispensing Department," price 51.; a 5-ft. 9-in. ditto ditto, 51.; a 7-ft. wall-case with cupboard under, as fig. 200, 147.; nest fittings, 12 ft. long, Maw's fig. 197, 181.; 4 nests good mahogany-fronted drawers—1 nest 2 ft. 8 in. long, 1 ditto 3 ft. 6 in., 1 ditto 8 ft., all to match, with lockers under, 1s. 6d. per drawer; some very good deal painted and grained mahogany drawers at 1s. 2d. each, in nests; 11-ft. 6-in. mahogany counter, fitted with 20 drawers, 81.; 8-ft. 3-in. ditto ditto, 11 drawers, 61.; 7-ft. 4-in. ditto ditto, fitted with 14 drawers, 61.; 12-ft. Spanish mahogany counter, 16s. per foot; 8-ft. Spanish mahogany counter, fitted with 4 drawers, 81.; 7-ft. mahogany counter, fitted with 13 drawers, 61. 10s.; 10-ft. 8-in. mahogany-top counter, 90s. E. Natali, 207 Old Street, London, E.C.

Educational.

A Leecher's materia medica cabinet, 7 guineas, price 4 guineas; in excellent condition; very little used. G. G. Brown, Windsor Place, Shrewsbury.

All the books invaluable to Minor students advertised last month, by Saunders, Private Tutor, 79 Gaisford Street, N.W., are still for sale.

Student's Herbarium, containing the official and leading indigenous plants (120), recently mounted, classed and named, only 10s. 6d. Tully, Chemist, Tinsbridge Wells.

Invaluable to Candidates Preparing for Medical or Surgical Degrees.—A complete set of Ellis and Porde's life-size coloured anatomical plates with text, cost 6 guineas; also Rodwell's "Notes on Philosophy;" Newth's and Buckmaster's "Physics." State offers to Dr. Cooper, Banton, Cork.

Minor Students—50 questions asked of a successful candidate, 2s.; 30 prescriptions given to dispense at the Minor, 2s.; Hints how and what to study, by a successful student, 1s.; 50 illegible prescriptions, 2s. 6d.; 60 mounted indigenous plants, 5s. "Chemist," care of Mr. Edwards, Wye, Kent.

Fifty questions asked of a successful student at last July Minor, 2s.; 30 prescriptions (catch and difficult) given to dispense at Minor during past session, 2s.; complete set of fresh indigenous medicinal plants sent (carriage paid) for 5s. Saunders, Tutor, 79 Gaisford Street, N.W.

Notes for the Minor by a Successful Student last Session.—Materia medica, 2s. 6d.; chemistry, 2s. 6d.; botany, including diagnosis of nearly 100 flowers, 3s.; pharmacy and physics, 2s. 6d.; over 100 prescriptions—How to dispense them, and notes on prescription reading, 2s. 6d.; 200 questions asked at the Minor, 1s.; post free. Minor, T. Bridger Hartley, Wintney, Hants.

Formulae.

Recipe book, containing 200, 40s., [exchange, 39/27.

A good cough-mixture, 7s. 6d.; also a good quinine and iron tonic, 5s., or the both for 12s. G. H. Walters, 65 Judd Street, London.

Face Powders.—Chemists requiring a first-class article should send for my receipt; equal to any advertised, cheap to prepare, 2s. free. "Fideles," Windsor House, Sidmouth.

Soluble essence of ginger (elegant preparation), excellent blue-black ink (perfectly fluid, no deposit), white cherry tooth-paste (delicately perfumed, never ferments), powder for cleaning sponges, hair-brushes, &c. (resembles Hassell's), effervescing saline (like Lamplough's). These are genuine and reliable, 5s. each (guinea the lot). Herbert Hebblethwaite, Cumberland Market, Regent's Park, N.W.

F. J. Lea, A.P.S., Chemist and Dentist, Tontine Street, Folkestone, begs to return his sincere thanks for past favours shown him from chemists who have lately purchased his formulae, and expressed their opinions so favourably on the same, and has pleasure in announcing he will now supply (to all chemists who have not yet written for them) a selection of 50 for 10s. They are all good stock, in daily demand, and some are very valuable.

WANTED.

New English honey. Hubbard & Son, Walsall. Britton's "Vade Mecum," state price, 36/2.

Shop bottles and jars, cheap. 39/27.

Tome's "Dental Surgery," and Cole's "Dental Mechanisms. 41/2.

Old carved oak furniture. Send full particulars and lowest price, Woodson, Sheffield.

Lindley's "School Botany," Fownes' "Chemistry," twelfth edition. 39/25.

Barnett & Foster's "Mineral Water Recipe Book." Townley, Chemist, Keswick.

A street show lamp, with bracket, in good condition and cheap. Bell, Epworth.

Two-grain pill machine, Beasley's "Poeket Formula," and 3,000 Prescriptions, two dentist's show cases. Kendall, Blyth.

Pharmaceutical Journal, July to December, 1873, inclusive, also Nos. 263, 286, 287, 292, 350, 428. Wise, Chemist, Launceston.

February, 1869, number of *Chemist and Druggist*; will give 2s., or will pay postage, for loan of one. Maddock, Pulborough.

Outside lamp, with three bottle lenses, Edward Watkinson, 25 Coleridge Street, Burmand-tofts, Leeds.

About 1 cwt. soiled honeycomb sponges, large size, or West Indian. H., 196 Union Street, Clidham.

A constant current galvanic battery, 20 to 32 cells. Osborne, Chemist, Moss Side, Manchester.

6-foot dispensing screen, mirror centre preferred; work on mechanical dentistry, good. Smith, Chemist, Amersham.

A dental chair, White's preferred; air-pump, Mathew's or Shadbolt's turntable; Newman's "Epidontera," last edition. Weston, Ventnor.

Cheap, Bentley's "Mammal of Botany," Garrod's "Materia Medica," latest editions, and "Selecta e Prescriptis." Hall, Levenshulme, Manchester.

The "Dispenser's Vade Mecum," old recipe books, books on pharmacy, dispensing, or pharmaceutical chemistry, perfumery, &c., lowest price to "W." 285 Camberwell Road, London.

BRITISH COMMERCE IN CHEMICAL PRODUCTS, &c.

A GLANCE at the figures of our foreign commerce (imports and exports) of chemicals, drugs, oils, &c., may prove interesting to many who have not the opportunity of analysing the official returns, and we purpose making a few passing remarks on the principal articles, taking the imports first. We find that our imports of alkali are but one-half what they were five years ago. Our supplies of cinchona are largely on the increase, although as yet we get but a few thousand hundredweight from India. Our supply of sulphur was less by 200,000 cwt. than the previous year. The imports of foreign stearine candles keep steady, averaging about 110,000 cwt. The imports of chemical products unenumerated and manufactures keeps at about 1,000,000*l.* in value, although there was a little decline last year.

The value of the drugs unenumerated has been pretty uniform the last two years. All the madder dyes show a large gradual decline, and the import of dyewoods is less. The quantity of galls imported increases, there being an excess of 5,000 cwt. received last year. The receipts of gum arabic do not vary much. Kowrie gum, or resin, used for varnishes, varies, but has been increasing of late years. Gum lac and dye fluctuates; there was a drop from 100,000 cwt. to 79,000 cwt. last year. The other miscellaneous gums, which include the medicinal, fluctuate between 87,000 cwt. and 76,000 cwt. There is a notable increase in isinglass: the imports have risen from 4,000 cwt. in 1874 to 6,000 cwt. in 1878. There has also been a large increase in the imports of liquorice, from 18,000 cwt. to 23,000 cwt.; in 1877 the receipts were 26,653 cwt. Preserved meat, which involves chemical processes in its preparation, has sprung up from 171,373 cwt. in 1875 to 439,900 cwt. in 1878.

The supply of coconut oil has fallen off about 100,000 cwt. Olive oil was 11,000 tons below the previous year. Palm oil has also greatly declined; in 1875 we received over 1,000,000 cwt; last year only 670,797 cwt. Seed oil has also dropped down 2,000 to 3,000 tons. Turpentine has increased nearly 70,000 cwt.; and the exports of chemical, essential, and other oils, have fallen off 800,000 lbs. The supply of petroleum, which had been gradually increasing, now shows a retrograde movement, there being a decline of 3,600,000 gallons. Saltpetre keeps steady, and the imports of cubic nitre are recovering, there being an increase of nearly 600,000 cwt. Turning now to the exports we find our shipments of alkali keep steady; candles show a large falling-off of 800,000 lbs. The value of the unenumerated chemical products exported keeps steady, although not quite so large as some years ago. The products of coal shipped were to the value of 437,614*l.*

There is a little falling-off in the lucifer and vesta matches. Medicines, drugs, and medicinal preparations show a steady increase, being over 750,000*l.* in value. Of seed oil we shipped 3,400,000 more gallons than the previous year. The exports of British soap increase, having sprung up from 219,000 cwt. to 335,600 cwt.

The following figures of quantities and values are from the official annual statement of the trade of the Kingdom:—

Imports.

		£
Alkali	Cwt.	53,821 .. 63,756
Peruvian bark	"	53,886 .. 867,376
Bark extracts for tanning or dyeing	"	— .. 128,694
Brimstone	"	874,959 .. 241,237
Candles, stearine	"	110,036 .. 350,231
Candles, other kinds	"	8,111 .. 26,989
Chemical manufactures and products, unenumerated	"	— .. 992,751
Chloroform	lbs.	4,810 .. 660
Chloral hydrate	"	21,820 .. 4,253
Collodion	"	335 .. 397
Cutch	galls.	6,107 .. 139,530
Drugs, unenumerated	"	— .. 487,590
Dye-stuffs, unenumerated	cwt.	400,051 .. 751,918
Logwood	tons	38,311 .. 220,245
Other dyewoods	"	16,037 .. 109,888
Ether, sulphuric	galls.	3,902 .. 1,319
Ethyl, iodide of	"	6 .. 11
Extracts, unenumerated	"	— .. 32,917
Farinaceous substances: arrowroot, tapioca, &c.	"	— .. 558,306
Galls	cwt.	31,478 .. 78,963
Gambier	tons	22,506 .. 424,550

Gum arabic	cwt.	59,147 .. 179,118
Gum kowrie for varnish	"	41,264 .. 100,276
Gum lac and dye	"	79,593 .. 273,923
Gum, unenumerated	"	76,152 .. 301,858
Indigo	"	65,503 .. 1,583,191
Jute	"	— .. 6,770
Isinglass	"	6,103 .. 118,507
Liquorice	"	23,342 .. 61,724
Madder	"	21,859 .. 24,039
Madder root	"	10,917 .. 10,435
Garancine	"	2,582 .. 8,461
Munjut	"	285 .. 390
Meat, preserved	"	439,900 .. 1,315,701
Myrobolans	"	783,167 .. 425,972
Naphtha, crude	galls.	1,759,753 .. 64,171
Cubic nitre	cwt.	2,080,208 .. 1,547,351
Spermaceti	tuns	5,156 .. 356,419
Castor oil	cwt.	75,491 .. 170,497
Cocoonut oil	"	92,915 .. 201,973
Olive oil	tuns	20,615 .. 1,028,757
Palm oil	cwt.	670,797 .. 1,167,161
Seed oil	tuns	12,863 .. 467,375
Turpentine, oil of	cwt.	324,125 .. 358,000
Essential, perfumed, &c.	lbs.	569,133 .. 189,598
Unenumerated oils	"	— .. 103,673
Opium	lbs.	558,840 .. 435,188
Paraffin	cwt.	48,763 .. 133,059
Perfumery	lbs.	1,110,364 .. 115,177
Petroleum, refined	galls.	29,460,718 .. 1,191,110
Petroleum, unrefined	tuns	3,154 .. 21,216
Quicksilver	lbs.	3,232,618 .. 302,919
Safflower	cwt.	3,459 .. 15,772
Spirits, perfumed	galls.	45,879 .. 76,923
Nitrate of potash	cwt.	279,601 .. 294,880
Turpentine, rough	"	4,234 .. 2,188
Varnish	"	— .. 3,467
Wax	"	12,627 .. 77,784

Exports—British.

Alkali	cwt.	5,644,399 .. 1,974,633
Bleaching materials	"	1,071,300 .. 280,793
Candles	lbs.	5,345,900 .. 170,161
Cement	cwt.	4,482,700 .. 573,358
Chemical products	"	— .. 1,892,864
Medicines	"	— .. 777,745
Seed oil	galls.	16,966,800 .. 1,998,646
Other sorts	"	— .. 398,249
Perfumery	"	— .. 103,934
Saltpetre, British	cwt.	43,801 .. 56,767
Soap	"	335,592 .. 405,183
Turpentine oil	galls.	66,100 .. 8,434

Exports—Foreign and Colonial.

Peruvian bark	cwt.	42,781 .. 647,777
Brimstone	"	26,684 .. 9,055
Candles, stearine	"	103,175 .. 338,669
Candles, others	"	3,092 .. 10,826
Chemical products	"	— .. 95,070
Chloral hydrate	lbs.	3,869 .. 815
Chloroform	"	4,986 .. 647
Collodion	galls.	327 .. 342
Dye stuffs	cwt.	74,317 .. 96,234
Logwood	tons	3,466 .. 22,085
Other dye woods	"	3,753 .. 29,156
Dye extracts, &c.	"	— .. 38,871
Ether, sulphuric	galls.	3,678 .. 1,645
Galls	cwt.	15,702 .. 43,055
Gambier	tons	6,872 .. 125,583
Gum arabic	cwt.	22,130 .. 63,159
Gum kowrie	"	22,896 .. 59,132
Gum lac and dye	"	41,827 .. 145,093
Gum, unenumerated	"	43,270 .. 157,390
Indigo	"	50,136 .. 1,244,690
Isinglass	"	943 .. 14,136
Madders and garancine	"	1,830 .. 3,880
Myrobolans	"	20,702 .. 11,021
Naphtha	galls.	250 .. 46
Nitre, cubic	cwt.	61,392 .. 46,620
Spermaceti	tuns	189 .. 13,940
Cocoonut oil	cwt.	88,887 .. 189,789
Olive oil	tuns	2,109 .. 119,645
Palm oil	cwt.	186,779 .. 321,118
Seed oil	tuns	637 .. 22,085
Essential, &c.	lbs.	167,601 .. 53,679
Unenumerated oils	"	— .. 21,200
Opium	lbs.	314,330 .. 256,360
Petroleum, refined	galls.	828,066 .. 36,332
Quicksilver	lbs.	2,160,441 .. 198,596
Saltpetre	cwt.	26,260 .. 27,861
Spirits, perfumed	galls.	20,688 .. 34,719
Spirits, in bond	galls.	16,290 .. 72,081
Turpentine	cwt.	20,510 .. 26,307
Varnish	"	— .. 4,457
Wax	cwt.	9,249 .. 33,138

THERE are 434 Chinese business houses in San Francisco, and 25 of these are druggists.



THE last month has been fertile in hopeful reports as to the prospect of better trade, and it seems unquestionable that a revival has set in in America. The harvest in England will probably turn out better than was feared a month ago, but it is quite certain that much more English money will have to be paid out of the country during the ensuing year for necessary food than has been spent in the past year. The national wealth can only be kept up, therefore, by a correspondingly increased demand for our products or manufactures.

The value of British shipments in August was 17,327,308*l.*, which was 23,770*l.* better than in August, 1878. The slight improvement which has been exhibited during the past two months has been due to an improved demand for iron and steel manufactures, and the fact that an improvement has commenced in that section of our national industry is perhaps the most hopeful sign we could have of the prospects of general trade.

There is a distinct improvement in the tone of the market for British chemicals. Prices have generally been steady throughout the month, and in one or two instances a perceptible advance has been made. As a rule, too, makers decline to enter into forward contracts at current rates. The American demand has been especially good, and reports from that side seem to suggest that it is likely to continue. Soda ash has gained a sixteenth, and bicarbonate is 2*s.* 6*d.* per ton dearer, at 9*l.* 2*s.* 6*d.* to 9*l.* 5*s.* Crystals have been firm through the month at 3*l.* 3*s.* 9*d.* Canstic steady at 9*l.* 5*s.* to 9*l.* 10*s.* Bleaching powder has made no advance, and is still quoted at 5*s.* 9*d.* in London. Chlorate of potash is $\frac{1}{2}$ *d.* higher, at 6 $\frac{1}{2}$ *d.*, and is in good demand. Yellow prussiate at 10 $\frac{1}{4}$ *d.* to 10 $\frac{3}{4}$ *d.* Bichromate unaltered but scarce, at 5*d.* Carbonate of ammonia selling well at 6 $\frac{1}{2}$ *d.* to 6 $\frac{3}{4}$ *d.* Refined borax quiet at 36*s.* to 37*s.*, but an advance in crude, in consequence of the combination of the Californian producers, by no means improbable. The past summer has been a wretched one for makers of citric and tartaric acids. A further drop in the former fails to attract business. Alum is quiet at 6*l.* to 6*l.* 5*s.* for lump and 7*l.* for powdered.

Benzoic acid has been advanced $\frac{1}{2}$ *d.* per ounce as a consequence of the higher price of gum benjamin. A good deal of firmness with advancing quotations has been manifested in respect to camphor, and refiners now ask 1*s.* 3 $\frac{1}{2}$ *d.* Mercury has been advanced, but a return to the extravagant prices of previous years can hardly be apprehended for this metal, as the Californian competition will suffice to check any such tendency. Quinine has fluctuated, and towards the end of last month there was a manifest tendency towards a fall, but a recovery has since taken place, and prices are generally near those of last month, French being, however, particularly higher. The cause of this seems to be that the American makers are especially competing against English prices. They are willing to be undersold by French and German makers, but they try to sell at a fraction below the price of English, as their own and British quinines enjoy about an equal reputation. Morphia, of course, follows the opium market, but it must not be forgotten that in consequence of small demand its present price is under the equivalent.

The drug sales have been very well supported, and in many cases prices have an upward tendency. Balsam copaiba is going up fast, 2*s.* 7*d.* being demanded for fine Maranhão. Fair Para cannot be bought for much under 2*s.* The stock is very low, and it is reported that diminished arrivals are to be expected. Cardamoms have sold at continually advancing prices. Both Cape and Barbados aloes have also further advanced. Rhubarb is lower, China sell-

ing at 1*s.* 6*d.* for dark to 3*s.* for bright bold pieces. A box of trimmed was bought in at 9*s.* The new opium is now on the market, and is found of satisfactory quality. Although Smyrna reports clearly indicate that an advance is to be expected before the end of the year, holders of old stock have been clearing out, and this has caused a slight temporary flatness. The best estimate shows that, counting all the stock in Smyrna, Constantinople, London, and New York, there are not more than 6,000 cases on hand. Last year at the same time there were about 10,000 cases. Jaborandi leaves are priced at 1*s.* 3*d.*, and coca at 1*s.* The London stock of Senega has been bought up, and the price has been considerably advanced. Essential oils are very strong. Lemon and bergamot are reported dearer from abroad. Clove has advanced, Mitcham oils are expected to be very dear, and most other varieties are firm or advancing. Otto of rose is an exception. This is very moderate this year. Quillaia bark has been abundant lately. A lot of 620 bales, first-class damaged, was sold in Liverpool lately, all faults, 7*l.* 2*s.* 6*d.* per ton. Cubebs have declined. The high price they attained at the beginning of the year was due to an American fancy to use them in all sorts of complaints, which subsided as suddenly as it arose. New camomiles are this year very late and very scarce. They will probably command high prices. Dalmatian insect powder, of the so-called "closed flowers" which are most esteemed, have sold at much higher prices, 210*fl.* per cwt. being paid for them on the spot. The advance was occasioned by excessive orders for America. A good crop of Alexandrian senna is reported. The wet spring and summer are said to have seriously diminished the crops of belladonna, conium, aconite, foxglove, and henbane in Germany, as it has done in the case of most English-grown herbs. Belladonna and hemlock turn out also of poor colour.

The new year's Norwegian cod liver oil is of very fine quality, and it is more abundant and cheaper at Bergen than has ever been known. Jamaica ginger is somewhat higher, but Cochín is in abundant supply and is cheaper. The price of the lower qualities has been kept down of late by importations of Bengal ginger. Isinglass is 2*d.* to 3*d.* higher for best Penang and Brazilian kinds. Indigo has advanced from 3*d.* to 6*d.* since the July sales. The next sales are fixed for October 13. A considerable speculative demand for shellac caused an advance of 2*s.*, but this has hardly been maintained.

Very little change has occurred in the oil markets. Seal and whale oils have again declined, and olive is hardly so firm in the absence of business. Petroleum has slightly recovered.

The following were the stocks of the most important drugs in the port of London on August 31:—

	1879	1878		1879	1878
Aloes cs	1,026	1,752	Gum (Cont)—		
" kegs	11	14	Assafoetida pkgs	476	332
" gourds	626	784	Benjamin ..	953	822
Aniseed, Star chts	567	968	Damar ..	942	1,060
Arrowroot cs	12,735	17,964	Galbanum ..	13	25
" bxs & tins	13,832	8,561	Gamboge ..	145	178
Balsam cs, &c.	35	133	Gnaphalium ..	37	27
Bark, Medicinal			Kino	32	13
" cs, &c.	436	880	Kowrie tins	727	833
" srs, &c.	17,296	8,754	Mastic pkgs	140	179
Borax pkgs	617	1,431	Myrrh, E.I. ..	175	301
Bees' Wax ..bls & srs	623	368	Olibanum ..	2,130	1,912
" cs & cakes	2,929	1,458	Sandarac ..	463	1,072
" cakes	27	323	Senegal tins	48	20
Wax, Jap. veg. pkgs	3,563	598	Tragacanth pkgs	2,233	1,283
Camphor pkgs	6,422	1,918	Ipecac. cs & bgs	228	204
Cardamoms ..chts	316	306	Jalap bils	368	455
Coc. Ind. bgs, &c.	1,522	1,795	Nux Vomica pkgs	1,967	4,580
Colombo root pkgs	592	555	Oil—		
Cream Tartar.ccs	103	98	Castor cs	5,335	2,942
Cubebs bgs	94	184	" cs	609	1,021
Dragonsblood chts	31	87	Palm tins	3,431	1,398
Galls, E.I. cs & cs	2,006	7,817	Cocoanut tins	864	740
M'terranean sks	569	1,146	Olive cs, &c.	52	193
Gum—			Aniseed cs	276	583
Ammoniac pkgs	471	538	Cassia cs	742	1,149
Animi & Cojal			Opium chts, &c.	1,390	1,339
" pkgs	3,451	7,509	Rhubarb chts	469	967
Arabic, Barbary			Sarsaparilla bils	1,225	1,851
" pkgs	1,423	1,003	Senna bils, &c.	39,634	44,541
Turkey ..	1,596	438	Shellac chts &c.	1,697	985
E.I.	1,321	2,313	Turmeric tins	165	29
			Vermilion		

Monthly Price Current.

The prices quoted in the following list are those actually obtained in Mining Lane for articles sold in bulk. Our Retail Subscribers must not expect to purchase at these market prices, but they may draw from them useful conclusions respecting the prices at which articles are offered by the Wholesale Firms.

CHEMICALS.		1879.		1878.	
ACIDS—		s. d.	s. d.	s. d.	s. d.
Acetic	per lb.	0 2½ to	0 3½	0 2½ to	0 0
pur		0 4 ..	0 7	0 0 ..	0 0
glaciale ..		0 9½ ..	0 10	0 0 ..	0 0
Benzoic Sublimate ..		6 6 ..	0 0	0 0 ..	0 0
Citric		1 7½ ..	0 0	2 4½ ..	0 0
Gallic		3 6 ..	3 10	0 0 ..	0 0
Hydrochlor.	per cwt.	5 0 ..	7 0	4 0 ..	7 0
Nitric	per lb.	0 4½ ..	0 0	0 4½ ..	0 0
Oxalic		0 4 ..	0 0	0 4½ ..	0 0
Sulphuric		0 0½ ..	0 1	0 0½ ..	0 1
Salicylic		8 3 ..	8 9	0 9 ..	0 0
Tannic		1 8 ..	2 8	0 0 ..	0 0
Tartaric crystal. ..		1 3½ ..	0 0	1 5½ ..	0 0
powdered ..		1 3½ ..	0 0	1 5½ ..	0 0
ANTIMONY ore	per ton	240 0 ..	300 0	240 0 ..	330 0
crude	per cwt.	36 0 ..	0 0	37 0 ..	0 0
star		47 6 ..	48 0	49 0 ..	49 6
ARSENIC, lump		24 0 ..	0 0	28 0 ..	0 0
powder		10 3 ..	0 0	8 6 ..	8 9
BRIMSTONE, rough ..	per ton	105 0 ..	110 0	110 0 ..	115 0
roll	per cwt.	9 6 ..	10 3	9 0 ..	0 0
flour		10 6 ..	12 3	10 6 ..	13 0
GLYCERINE, German ..		41 6 ..	55 0	0 0 ..	0 0
refined		25 6 ..	27 6	0 0 ..	0 0
crude brown		1 2 ..	0 0	1 0 ..	0 0
IODINE, dry	per oz.	1 10 ..	0 0	1 10 ..	0 0
MAGNESIA, calcined ..	per lb.	0 0 ..	0 0	140 0 ..	0 0
MERCURY	per bottle	125 0 ..	0 0	18 6 ..	19 0
MINIUM, red	per cwt.	15 3 ..	0 0	23 6 ..	0 0
orange		28 6 ..	0 0	3 5 ..	0 0
PRECIPITATE, red ..	per lb.	3 2 ..	0 0	3 4 ..	0 0
white		3 1 ..	0 0	0 0 ..	0 0
PRUSSIAN BLUE		0 0 ..	0 0	0 0 ..	0 0
SANTONINE		22 6 ..	0 0	0 0 ..	0 0
SALICINE		17 6 ..	0 0	0 0 ..	0 0
SALTS—					
Alum	per ton	122 6 ..	125 0	125 0 ..	0 0
powder		140 0 ..	0 0	145 0 ..	0 0
Ammonia:					
Carbonate	per lb.	0 6½ ..	0 6½	0 6½ ..	0 6½
Hydrochlorate, crude, white	per ton	600 0 ..	760 0	600 0 ..	720 0
British (see Sal Am.) ..					
Sulphate	per ton	380 0 ..	410 0	410 0 ..	420 0
Argol, Cape	per cwt.	75 0 ..	80 0	75 0 ..	82 0
Red		50 0 ..	70 0	52 0 ..	70 0
Oporto, red		28 0 ..	32 0	32 6 ..	33 0
Sicily		60 0 ..	65 0	60 0 ..	65 0
Ashes (see Potash and Soda)					
Bleaching powd.	per cwt.	5 9 ..	0 0	6 0 ..	6 3
Borax, British refin. ..		35 0 ..	36 0	35 0 ..	37 6
Calomel	per lb.	2 9 ..	0 0	3 0 ..	0 0
Chloral hydrate		4 8 ..	0 0	0 0 ..	0 0
Liebreich's		5 10 ..	6 0	0 0 ..	0 0
Copper:					
Sulphate	per cwt.	18 0 ..	18 3	18 3 ..	18 6
Copperas, green	per ton	50 0 ..	55 0	50 0 ..	55 0
Corrosive Sublimate p. lb.		2 3 ..	0 0	2 5 ..	0 0
Cr. Tartar, French, p. cwt.		103 0 ..	104 0	107 0 ..	0 0
brown		80 0 ..	82 6	80 0 ..	0 0
Epsom Salts		4 3 ..	6 0	4 3 ..	6 0
Glauber Salts		3 0 ..	4 6	3 0 ..	4 6
Magnesia: Carbonate ..		47 6 ..	0 6	47 6 ..	0 0
Potash:					
Bichromate	per lb.	0 5 ..	0 0	0 5 ..	0 0
Carbonate:					
Potashes, Canada, 1st sort	per cwt.	22 0 ..	0 0	23 0 ..	0 0
Pearlashes, Canada, 1st sort	per cwt.	40 0 ..	0 0	32 0 ..	33 0
Chlorate	per lb.	0 6½ ..	0 0	0 7½ ..	0 7½
Prussiate		0 10 ..	0 11	0 11 ..	0 11½
red		1 8 ..	1 10½	1 7½ ..	1 8
Tartrate (see Argol and Cream of Tartar)					
Potassium:					
Bromide		1 5 ..	0 0	1 8 ..	0 0
Chloride	per cwt.	6 6 ..	0 0	6 6 ..	0 0
Iodide	per lb.	16 6 ..	17 0	15 0 ..	15 6
Quinine:					
Sulphate, British, in bottles	per oz.	12 6 ..	0 0	12 6 ..	0 0
Sulphate, French		13 6 ..	0 0	12 3 ..	0 0
Sulphate, German		11 6 ..	12 0	0 0 ..	0 0
Sal Acetos	per lb.	0 6 ..	0 6½	0 6½ ..	0 6½
Sal Ammoniac, Brit. cwt.		44 0 ..	45 0	44 0 ..	45 0

		1879.		1878.	
		s. d.	s. d.	s. d.	s. d.
Saltpetre:					
Bengal, 6 per cent. or under	per cwt.	18 3 ..	18 9	19 3 ..	19 6
Bengal, over 6 per cent. per cwt.		17 3 ..	18 0	18 0 ..	19 0
British, refined ..		22 0 ..	23 9	24 0 ..	25 0
Soda: Bicarbonate ..		9 1½ ..	9 3	10 0 ..	0 0
Carbonate:					
Soda Ash	per deg.	0 1½ ..	0 0	0 1 ..	0 0
Soda Crystals per ton		63 9 ..	0 0	62 6 ..	0 0
Caustic		0 0 ..	0 0	11 3 ..	11 6
Hyposulphite, per cwt.		0 0 ..	0 0	0 0 ..	0 0
Nitrate		14 6 ..	14 9	15 3 ..	15 6
Zinc Sulphate		0 0 ..	0 0	0 0 ..	0 0
SUGAR OF LEAD, White cwt.		37 6 ..	0 0	37 0 ..	0 0
Brown, cwt.		26 6 ..	0 0	26 6 ..	0 0
VERDIGRIS	per lb.	0 0 to	0 0	1 1 to	1 5
VERMILION, English ..		2 2 ..	0 0	2 8 ..	0 0
China		1 10 ..	1 11	2 6 ..	0 0
DRUGS.					
ALOES, Hepatic	per cwt.	70 0 ..	160 0	80 0 ..	160 0
Socotrine		100 0 ..	200 0	90 0 ..	200 0
Cape, good		54 0 ..	55 0	49 0 ..	50 0
Inferior		48 0 ..	53 0	46 0 ..	48 0
Barbadoes		55 0 ..	200 0	45 0 ..	147 0
AMBERGRIS, grey	oz.	55 0 ..	80 0	67 6 ..	85 0
BALSAM—					
Canada	per lb.	1 0 ..	1 1	0 0 ..	0 0
Capivi		1 8 ..	2 7	1 4 ..	2 0
Peru		5 9 ..	6 0	1 9 ..	2 1
Tolu		3 0 ..	3 3	3 3 ..	3 9
BARKS—					
Canella alba	per cwt.	17 0 ..	25 0	18 0 ..	19 0
Cascarilla		17 0 ..	24 0	17 0 ..	23 0
Peru, crown & grey per lb.		1 2 ..	2 6	1 9 ..	3 3½
Calisaya, flat		1 2 ..	4 6	2 0 ..	4 6
" quill		1 2 ..	7 6	4 0 ..	7 0
Carthagena		2 0 ..	4 5	2 4 ..	4 11
Columbian		1 10 ..	8 0	2 0 ..	6 0
E. I.		1 0 ..	4 0	1 6 ..	3 6
" good & fine ..		4 1 ..	10 3	4 0 ..	9 0
Pitayo		1 6 ..	3 3	0 6 ..	2 6
Red		6 0 ..	11 9	3 0 ..	8 0
Buchu Leaves		0 1½ ..	1 5	0 2½ ..	1 3
CAMPHOR, China	per cwt.	80 0 ..	0 0	85 0 ..	87 6
Japan		82 6 ..	0 0	90 0 ..	92 6
Refin. Eng. per lb.		1 3 ..	1 3½	1 4½ ..	0 0
CANTHARIDES		1 7 ..	4 6	1 9 ..	4 0
CHAMOMILE FLOWERS p. cwt.		35 0 ..	80 0	60 0 ..	80 0
CASTOREUM	per lb.	16 0 ..	28 0	0 0 ..	0 0
DRAGON'S BLOOD, lp. p. cwt.		115 0 ..	265 0	80 0 ..	200 0
FRUITS AND SEEDS (see also Seeds and Spices).					
Anise, China Star per cwt.		85 0 ..	90 0	80 0 ..	90 0
Spanish, &c.		37 6 ..	40 0	28 0 ..	35 0
Beans, Tonquin	per lb.	4 6 ..	5 6	3 3 ..	5 4
Cardamoms, Malabar good		8 3 ..	9 10	6 0 ..	6 6
inferior		3 9 ..	8 0	2 0 ..	5 10
Aleppy		4 6 ..	9 6	2 0 ..	6 6
Madras		2 0 ..	7 6	2 8 ..	4 6
Ceylon		3 6 ..	4 0	3 0 ..	4 3
Cassia Fistula	per cwt.	38 0 ..	40 0	0 0 ..	0 0
Castor Seeds		0 0 ..	0 0	0 0 ..	0 0
Cocculus Indicus		7 6 ..	8 6	7 9 ..	10 0
Colocynth, apple	per lb.	1 3 ..	1 6	1 0 ..	1 9
Croton Seeds	per cwt.	29 0 ..	30 0	32 0 ..	33 0
Cubebs		45 0 ..	50 0	32 0 ..	35 0
Cummin		20 0 ..	40 0	20 0 ..	35 0
Dividivi		11 0 ..	15 6	11 0 ..	16 0
Fenugreek		0 0 ..	0 0	0 0 ..	0 0
Guinea Grains		36 6 ..	0 0	28 6 ..	30 0
Juniper Berries		0 0 ..	0 0	3 6 ..	6 0
Nux Vomica		6 6 ..	9 0	6 0 ..	10 6
Tamarinds, East India ..		11 0 ..	15 0	12 0 ..	19 0
West India		11 0 ..	20 0	19 0 ..	25 0
Vanilla, large	per lb.	38 0 ..	40 0	17 0 ..	23 0
inferior		13 0 ..	37 6	12 0 ..	16 0
GINGER, Preserved		0 5 ..	0 6	0 5½ ..	0 6
HONEY, Chili	per cwt.	30 0 ..	34 0	30 0 ..	50 0
Jamaica		30 0 ..	37 0	35 0 ..	45 0
Australian		0 0 ..	0 0	0 0 ..	0 0
IPECACUANHA	per lb.	3 10 ..	4 8	4 1 ..	4 9
ISINGLASS, Brazil		2 6 ..	5 4	2 6 ..	5 6
Tongue sort		2 9 ..	5 7	3 6 ..	5 7
East India		0 9 ..	4 4	1 4 ..	4 10
West India		2 10 ..	4 9	3 8 ..	4 6
Russ. long staple ..		6 0 ..	10 6	6 0 ..	14 0
" inferior		0 0 ..	0 0	0 0 ..	0 0
" Simovia		1 6 ..	2 6	1 6 ..	3 0
JALAP, good		0 11 ..	1 0	0 10 ..	0 11
infer. & stems		0 9 ..	0 10½	0 8 ..	0 9
LEMON JUICE	per degree	0 0½ ..	0 1½	0 0½ ..	0 1½
LIME JUICE	per gall.	1 3 ..	1 7	1 7 ..	1 9
LIQUORICE, Spanish	per cwt.	39 0 ..	36 0	34 0 ..	39 0
Liquorice Root		29 0 ..	30 0	0 0 ..	0 0
MANNA, flaky	per lb.	0 0 ..	0 0	3 6 ..	4 0
small		0 0 ..	0 0	1 4 ..	1 6
MUSK, Pod	per oz.	16 0 ..	71 0	25 6 ..	55 0
Grain		30 0 ..	70 0	0 0 ..	0 0
OILS (see also separate list)					
Almond, expressed per lb.		1 7 ..	0 0	1 10 ..	0 0
Castor, 1st pale		0 4½ ..	0 5	0 5½ ..	0 5
second		0 3½ ..	0 4	0 4½ ..	0 5
Cod Liver	per gall.	2 6 ..	4 6	2 9 ..	5 0
Croton	per oz.	0 0 ..	0 0	0 2½ ..	0 0

1879.				1878.				1879.				1878.			
	s.	d.		s.	d.			£	s.			£	s.		
Essential Oils:															
Almond.....per lb.	20	0	to	0	0	25	0	to	0	0		0	0	to	0
Anise-seed....."	9	0	..	0	0	6	9	..	0	0		30	0	..	0
Bergamot....."	6	0	..	9	0	0	0	..	0	0		30	0	..	0
Cajeput.....per bottle	3	6	..	4	0	0	0	..	0	0		29	0	..	0
Caraway.....per lb.	0	0	..	0	0	0	0	..	0	0		24	0	..	28
Cassia....."	3	2	..	3	3	2	9	..	0	0		0	0	..	0
Cinnamon.....per oz.	3	9	..	4	6	4	6	..	5	6		0	0	..	0
Cinnamon-leaf....."	0	1½	..	0	1½	0	1½	..	0	2		0	0	..	0
Citronelle....."	0	3½	..	0	4	0	2	..	0	2½		48	10	..	49
Clove....."	9	0	..	0	0	8	6	..	0	6		0	0	..	0
Ginger Grass....."	0	3½	..	0	0	0	1½	..	0	2		49	0	..	49
Lavender Exot.....per lb.	1	4	..	7	3	1	8	..	7	0		0	0	..	0
Mitcham....."	90	0	..	0	0	0	0	..	0	0		66	0	..	0
Lemon....."	3	0	..	5	6	4	0	..	8	0		48	0	..	48
Lemongrass.....per oz.	0	3½	..	0	0	0	2½	..	0	6		47	0	..	0
Neroli....."	0	0	..	0	0	3	0	..	6	6					
Nutmeg....."	0	3	..	0	3½	0	3	to	0	4					
Orange.....per lb.	0	0	..	0	0	5	0	..	7	0					
Otto of Roses.....per oz.	12	0	..	23	0	22	0	..	40	0					
Patchouli....."	0	0	..	0	0	1	6	..	3	0					
Peppermint:															
American.....per lb.	10	0	..	12	6	10	0	..	12	6		0	0	..	0
(H. G. Hotchkiss), .."	14	0	..	0	0	0	0	..	0	0		0	0	..	0
English....."	30	0	..	0	0	24	0	..	25	0		0	0	..	0
Japan....."	6	0	..	6	6	0	0	..	0	0		0	0	..	0
Rosemary....."	0	0	..	0	0	2	0	..	2	6		0	0	..	0
Sassafras....."	2	0	..	2	3	1	9	..	2	0		31	10	..	0
Spearmint....."	8	0	..	9	0	12	0	..	15	0		42	0	..	44
Thyme....."	0	0	..	0	0	0	0	..	0	0		30	0	..	31
Mace, expressed.....per oz.	0	5	..	0	0	0	6	..	0	7		0	0	..	22
Opium, Turkey.....per lb.	15	6	..	19	0	16	0	..	17	0		0	0	..	0
inferior....."	12	6	..	15	0	13	0	..	15	6		0	8½	..	0
QUASSIA (bitterwood) per ton	100	0	..	130	0	100	0	..	130	0		0	7½	..	0
RHUBARB, China, good and															
fine.....per lb.	1	6	..	3	1	1	6	..	4	0		50	0	..	65
Mid. to ord....."	0	6	..	1	3	0	9	..	1	4		43	0	..	45
Dutch Trimmed....."	0	0	..	0	0	0	0	..	0	0		0	0	..	0
ROOTS—Calumba.....per cwt.															
China....."	28	0	..	30	0	20	0	..	40	0		13	0	..	23
Cbiretta.....per lb.	0	2½	..	0	4	0	0	..	0	0		39	0	..	44
Galangal.....per cwt.	23	0	..	0	0	22	0	..	23	0		50	0	..	0
Gentian....."	16	0	..	20	0	18	0	..	20	0		51	6	..	52
Orris....."	20	0	..	45	0	0	0	..	0	0		52	6	..	53
Pellitory....."	0	0	..	0	0	10	0	..	76	0		0	0	..	0
Pink.....per lb.	1	0	..	1	4	0	0	..	0	0		14	0	..	17
Rhatany....."	0	2	..	0	5	0	2	..	0	5		9	0	..	16
Seneka....."	2	6	..	2	10	2	6	..	2	10		56	0	..	0
Snake....."	0	0	..	0	0	0	10	..	1	0					
SAFFRON, Spanish....."	35	0	..	42	0	20	0	..	45	0		42	0	..	52
SALEP.....per cwt.	100	0	..	120	0	240	0	..	300	0		22	0	..	36
SARSAPARILLA, Lima per lb.	0	4	..	0	6	0	5	..	0	7		56	0	..	57
Guayaquil....."	1	1	..	1	4	0	0	..	0	0					
Honduras....."	1	1	..	1	4	0	11	..	1	3		1	8	..	3
Jamaica....."	1	6	..	1	10	1	4	..	1	9		1	6	..	2
SASSAFRAS.....per cwt.	0	0	..	0	0	9	0	..	11	0		1	5	..	1
SCAMMONY, Virgin.....per lb.	20	0	..	29	0	0	0	..	0	0		1	11	..	2
second & ordinary....."	8	0	..	18	0	0	0	..	0	0		0	3	..	0
SENA, Bombay....."	0	0	..	0	0	0	0	..	0	0		1	8	..	1
Tinnivelly....."	0	2	..	0	9	0	1½	..	1	3		1	4	..	1
Alexandria....."	0	3½	..	1	6	0	5	..	1	6		1	2	..	1
SPERMACEETI, refined....."	1	3	..	0	0	1	4	..	0	0		1	0	..	0
American....."	1	1	..	0	0	1	3	..	0	0		18	0	..	18
SQUILLS....."	0	1	..	0	3	0	3	..	0	5		0	0	..	0
GUMS.															
AMMONIAC drop.....per cwt.	1	10	..	2	5	1	18	..	2	2		47	0	..	125
ANIMI, fine washed....."	14	0	..	15	10	13	10	..	15	0		0	4½	..	0
sorts....."	9	10	..	11	17	8	15	..	11	10		0	3½	..	0
ARABIC, pale picked....."	2	15	..	3	12	2	15	..	3	5		0	10	..	1
sorts, ind. to fin....."	1	18	..	2	14	2	2	..	2	12		1	4	..	3
TURKEY, pick. gd. to fin....."	7	0	..	9	15	5	0	..	9	0		1	4	..	3
second & inf....."	3	10	..	5	10	3	5	..	5	15		1	10	..	2
sorts....."	1	10	..	3	2½	2	0	..	3	0		1	0	..	1
ASSAFOETIDA, cm. to fin....."	1	8	..	2	12	0	13	..	2	10		4	0	..	4
BENJAMIN, 1st & 2nd....."	21	0	..	70	0	20	0	..	70	0		3	0	..	3
COPAL, Angola red....."	3	5	..	6	0	6	0	..	6	15		1	10	..	2
Benguela....."	3	0	..	3	10	4	0	..	5	0		0	4½	..	0
Sierra Leone, per lb.	0	7½	..	0	10	0	7½	..	0	9		2	3	..	2
Manilla.....per cwt.	17	0	..	30	0	16	6	..	23	6		2	3	..	2
DAMMAR, pale....."	77	6	..	95	0	75	0	..	80	0		2	2	..	0
EUPHORBUM....."	0	0	..	0	0	9	10	..	15	0		2	2	..	0
GALBANUM.....per lb.	0	0	..	0	0	0	3½	..	1	0		2	2	..	3
GAMBOGE, pckd. pipe per cwt.	230	0	..	270	0	210	0	..	212	6		2	2	..	2
GUAIACUM.....per lb.	1	0	..	2	9	1	0	..	2	5		2	2	..	3
KINO.....per cwt.	60	0	..	90	0	64	0	..	89	0		2	2	..	2
KOWRIE, sorts....."	40	0	..	55	0	37	0	..	48	0		33	0	..	34
selected....."	107	6	..	180	0	140	0	..	160	0		2	7	..	0
MASTIC, picked.....per lb.	2	0	..	3	6	3	0	..	3	8					
MYRRH, gd. & fine per cwt.	153	6	..	250	0	150	0	..	200	0		13	0	..	23
ord. to fair....."	60	0	..	150	0	60	0	..	150	0		25	0	..	26
OLIBANUM, p. drop....."	75	0	..	80	0	56	0	..	60	0		23	0	..	27
amber & ylw....."	65	0	..	72	0	40	0	..	53	0		7	5	..	8
SENEGAL....."	50	0	..	60	0	62	6	..	100	0		7	5	..	8
SANDARAC....."	86	0	..	100	0	69	0	..	87	0		2	14	..	2
SHELLAC, Orange....."	86	0	..	100	0	69	0	..	87	0		2	10	..	3
Liver....."	81	0	..	86	0	61	0	..	63	0		14	0	..	20
THUS....."	0	0	..	0	0	20	0	..	21	6		18	0	..	30
TRAGACANTH, leaf....."	200	0	..	360	0	240	0	..	400	0		8	0	..	8
in sorts....."	40	0	..	190	0	65	0	..	175	0		6	0	..	6
OILS.															
SEAL, pale.....per tun	25	10	..	0	0	31	10	..	32	0		5	10	..	5
yellow to tinged....."	23	10	..	24	10	28	0	..	31	0		9	0	..	10
brown....."	21	0	..	22	0	26	0	..	27	0		6	10	..	6
SPERM....."	54	0	..	0	0	66	0	..	0	0					
Oils, continued:—															
BODY.....pertun	0	0	to	0	0	0	0	to	0	0		0	0	to	0
COD....."	27	0	..	28	0	30	0	..	30	0		0	0	..	0
WHALE, South Sea, pale....."	23	0	..	0	0	30	0	..	0	0		29	0	..	0
yellow....."	22	0	..	0	0	24	0	..	0	0		24	0	..	28
brown....."	16	0	..	19	0	0	0	..	0	0		24	0	..	28
East India, Fish....."	0	0	..	0	0	0	0	..	0	0		0	0	..	0
Galipoli.....per ton	0	0	..	0	0	0	0	..	0	0					



LIMITED LIABILITY COMPETITION.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—Up to the present time I have not observed that the attention of the public has been directed to one glaring point of injustice to the retail tradesman: I allude to the system of limited liability as applied to ready-money vending, whether upon the co-operative principle or otherwise. The regular retail tradesman is always liable to his creditors for the full amount of his property in case of failure; the limited liability amateur tradesmen is not, and by taking shares to some trumpery amount in one of these privileged trading machines he may, in conjunction with others, trade as recklessly as a fraudulent bankrupt, and undersell honest tradesmen with the least possible risk of loss to himself. Unless a tradesman is allowed to reserve the bulk of his property and enter into trade with a nominal capital of any amount he chooses to proclaim, he is practically and dishonestly prevented from competing upon equitable terms with any description of limited liability company.

For this infamous system of legalised fraud and plunder we have to thank a certain section of our nominal representatives, the honourable members of the House of Commons, to whose disinterested legislation we are indebted for the so-called Limited Liability Companies Act, the more appropriate title of which, judging from its practical results, would be "An Act for the Promotion of Unlimited Knavery."

Suppose the tradesmen of the country, instead of the financial and professional classes, held a majority in the House of Commons, would they be justified in enriching their own class by placing capitalists and professional men at an enormous disadvantage to themselves in the exercise of their several business and professional occupations? This has been the legislative operation performed upon the trading classes by persons who are extremely anxious to preserve for themselves individually the external characteristics of honesty.

For retail tradesmen who wish to be in a position to compete with the limited liability machine there is but one course: To associate themselves into companies of 10 or 12 practical men, one of each kind of business, each man retaining his own establishment. They could arrange to support each other by any legal means, either privately or publicly. By this arrangement they would be able to compete on equal terms with, and trade as recklessly as, any co-operative company in existence, without the danger of losing all their property in case of failure. This system would be quite as honest, quite as honourable, and not a bit more fraudulent, than the companies promoted by the "learned" and "gallant" gentry, whose motives are invariably the essence of honesty, and at the same time extremely sensitive to the process of analytical investigation.

Retail tradesmen should now remember that the general election is approaching, hold private meetings, and form themselves into societies for the promotion of their class interests, and injure the prospects of any candidate who is known to support, or be in any way connected with, limited liability co-operative associations, giving special attention to the proceedings of the "gallant" gentry, who, being employes of the Government, and for their services, have no more right, in strict justice, to be members of the House of Commons than an equal number of Post-office clerks. Let each one remember that he is a tradesman first, and either Liberal or Conservative as a secondary consideration, promise his vote to no candidate, unless of his own class, but hold it to the order of the Tradesman's Committee, which might be established in most wards of our largest con- tinuities.

The "gallant" and "learned" gentry have not scrupled to combine with others for the purpose of legalising a deliberate robbery of the trading classes, and if some of the honourable candidates find themselves at in the cold, they may thank themselves for it.

For the purpose of creating confidence, interested parties are continually calling attention to the alleged prosperity of some of the limited liability co-operative companies; but, as the same thing occurred in the case of the City of Glasgow and West of England banks during a certain period of their existence, we may listen and wait for the finale.

I am, sir, yours obediently,

NEMESIS.

PRICES OF PROPRIETARY ARTICLES.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—Much has been written of late about the cutting prices at which patent medicines and proprietary articles are being sold in some places. It is no use wasting time in grumbling: the fact is there, and the retailers must ask the makers to co-operate with them to find a remedy for this suicidal policy. The makers say that although they will not supply the dealer or grocer who cuts the prices with these goods, yet they are powerless to prevent them getting supplied indirectly. If the remedy I now suggest

for this spreading evil he thought not sufficient, let the makers ask the retailers to assist them in devising some better plan. It is, I think, more the interest of the makers and wholesale dealers than of the retailers to seek a remedy. The retail chemist can, and will, recommend his own preparations rather than be made the distributor of other people's goods without a fair profit, and I expect the makers of proprietary goods have already felt the effects of such a policy. The plan I propose is that makers should affix a progressive number to each packet they put up, register the respective numbers sold by them to each wholesale or retail dealer, and state their intention of supplying no one who sells their goods under the marked prices, or any wholesale dealer who supplies such persons. There will be no difficulty in tracing the source from which the cutting tradesman draws his supplies. Thus a packet could be purchased and sent to the maker, who, on referring to his register, would see to whom he supplied the article in question, and would at once require a satisfactory explanation from the wholesale or primary purchaser. If such was not forthcoming he would discontinue to supply that dealer again on any terms. If the prices are too high let them be reduced, but by all means let proprietary articles be sold at one uniform price. If such firms as Guinness & Co. can place a different number on each of their bottles of stout, surely proprietors of patent medicines will have very little difficulty in adopting some similar plan.

I remain, yours truly,

CERA.

September 3, 1879.

We have received the following from Mr. J. J. Musgrave, surgeon-dentist, 1 St. Domingo Vale, Liverpool, who thinks it important we should make known these facts to chemists in this issue, as the Dental Register will be out soon:—

HOW CAN A CHEMIST'S ASSISTANT REGISTER HIMSELF AS "A DENTIST" IN BONA-FIDE PRACTICE?

The above question has been asked me during the last few months by numerous friends in both the medical and dental professions; in consequence I have been at considerable trouble to ascertain if any chemists' assistants had really registered as such, and find that they have. I have also had chemists pointed out to me who have never done any dental operation beyond "extracting a tooth," and have probably never seen inside a dental laboratory and know absolutely nothing of "dentistry," who have registered as being in *bona-fide* practice as dentists. Now, the Act never contemplated registration by any persons other than those known as being engaged in dentistry, either separately or in conjunction with pharmacy or surgery. It does not follow that because a chemist placed an engraved plate on his door with the word "dentist" upon it during the time the Act was passing that the law will recognise him as a dentist. A dentist, in the eye of the law, must have been a person engaged in every branch of the dental art—i.e., able to undertake any operation or do any mechanical work that may be required for the mouth by the public.

The various dental associations formed for the express purpose of sifting out and prosecuting fraudulent registrations, have an agent in every town now busily engaged in compiling a list of such registrations, Section 35 of the Dental Act, 1878, provides for such by fine and imprisonment on conviction.

Many think that because they have filled up the declaration paper sent by the registrar and received from him the Dental Registration Certificate that they are now safe; such, however, will not be the case without legal evidence of qualification and fitness, which will soon be demanded by the British Dental Association.

No chemist regularly engaged in *bona-fide* practice as a dentist need fear any annoyance or subsequent trouble. Such, however, as cannot bear the strictest investigation as being *bona-fide* in practice at the passing of the Act had better at once, and before the publication of the register, apply to Mr. Miller and have their names erased, to prevent "Section 35" being carried into effect.

[We print the above merely to show the animus of a certain section of the dentists now they have got their Act. We assert with confidence that any chemist and druggist or chemist's assistant who had been up to the time of the passing of the Act in the habit of extracting teeth when asked to do so was fully and legally entitled to registration as a dentist if he chose to ask for and to pay for such registration. We are certain that the promoters of the Bill intended this to be so, at any rate in regard to chemists and druggists in business, for the position of chemists as mere tooth-drawers in most instances was fully explained to Sir John Lubbock by the President of the Chemists and Druggists' Association when a deputation from that body waited upon him. But it is not a question of intention: it is a question of plain and straightforward legal language. Among persons entitled to registration is "Any person who is at the passing of this Act *bona-fide* engaged in the practice of dentistry or dental surgery, either separately or in conjunction with the practice of medicine, surgery, or pharmacy." "A dentist in the eye of the law," says our correspondent, "must have been a person engaged in every branch of the dental art." This remark looks authoritative, but there is not the shadow of foundation for it.

Chemists never asked for the Act, but they had certain rights which legislators, if not dentists, were bound to respect. The agents of the dental associations may amuse themselves as they please, but they will find that

Section 35 of the Act will be in the hands of intelligent judges, not of an interested trade union which is discontented with the bargain which it has itself made.—Ed. C. & D.]

31/51. *Alpha*.—A common sort of isinglass is known as *fish glue*. Apply to Mr. J. W. Hart, of 5 St. Mary Axe, London.

25/51. *A. C. D.*—We have not heard of any special demand for chemists' assistants in Australia or America. You will find an article bearing on the chance of assistants in the United States in our last April number. We have published one or two letters from South Africa, indicating a fair chance for steady, strong, and plucky drug assistants there.

12/51. *Della* has tried several advertised cherry tooth pastes, but complains that he always gets a bad colour and fermentation. We have made an excellent article by the following process:—

Powdered cochineal.

(Sub) Carbonate of potash, of each 1 oz.

Boil in a pint of water for ten minutes to about 12 or 14 oz. When cold, add cream of tartar 1 oz., alum $\frac{1}{2}$ oz., glycerine 2 oz., and water sufficient to make 16 oz. of filtered solution. Add this to 4 oz. honey, and set aside for a few days to see if any fermentation occurs. Carefully mix the liquid with 2 lbs. prepared chalk, $\frac{1}{4}$ oz. of orris powder, and $\frac{3}{4}$ oz. cassia powder.

13/53. *Rural*.—As a registered dentist you may, if you please, claim exemption from service on all juries and inquests whatever, and be free from serving in any ward, corporate, parochial, or township office, or in the militia.

39/28. *Pine, or Kertch, or Resin Oil*.—*C. H. O.*—This seems to have been discovered by accident. A workman tending a still in which spirit was being distilled from crude turpentine neglected to stop the process when the volatile oil ceased to come over. The resin was consequently decomposed by the heat, and resin oil produced. Resin oil is used for many purposes—as for tanners, for lubricating, and in making printing ink. Its properties can be varied by varying the process of manufacture. It somewhat resembles turpentine oil in composition. Full information concerning it will be found in Watt's "Dictionary of Chemistry," and in the Journal of the Chemical Society, second series, vol. xl, pp. 304 and 1175.

Price's Candle Company, Battersea, would probably be as good a firm as any to apply to for quotations.

Palm-nut oil is made from the seeds of *Elais guineensis*, ordinary palm oil being made from the pulp of the fruits of the same tree. Coconut oil is made from the albumen of cocoa-nuts, produced by *Cocos nucifera*, another palm.

We know of no special work on oils, fats, and resins. A great deal of information will be found in Muspratt's, and Spon's, and Watt's and Ure's dictionaries. Armstrong's "Organic Chemistry" (Longmans), 3s. 6d., is a good elementary work.

Cart Grease.—*C. H. O.* wants a good formula for making the cheapest form of wagon grease.

52/21. *Medicus*.—Strictly speaking, your query should not be answered as you have not sent your name. Try Nelson's gelatine mixed with simple syrup and glycerine, and some white pigment, such as zinc oxide or permanent white, i.e. barium sulphate.

52/47. *W.D.*—**Midwifery**.—A licence in midwifery can only be obtained by a regularly qualified medical practitioner. You would have to go through a regular three years' course, including attendance at the hospitals. You would then be qualified to practise midwifery without further licence, but you could pass another examination if you chose.

Nervine Balsam.—Formulae for nervine balsam are given in all the ordinary works of reference. The following is from Beasley's "Pocket Formulary":—Oil of mace and beef marrow, of each 4 oz.; melt, and add rosemary oil, 2 drachms; clove oil, 1 drachm; balsam of Tolu, 2 drachms; camphor, 1 drachm; dissolved in alcohol, 4 drachms.

52/42. *D. McG.*—**Pencils of Potassium Bichromate and Ammonium Chloride** can only be obtained by compression; neither fusion nor solution is available. We do not know that any apparatus for this purpose has been invented. The dry powdered salt must be filled into cavities of the required shape, and be submitted to hydraulic pressure. This will convert the powder into a homogeneous solid.

Corn Pencils.—We should advise you to apply to the Board of Inland Revenue, Somerset House, enclosing a specimen of your product. Should you do so we should be glad to know what is the result.

38/24. *Scotus*.—**Hydrargyri oxidum flavum** is not the same as hydrargyrum nitricum-oxidum. The yellow oxide is made by precipitating solution of mercuric chloride with lime-water &c. The red oxide is made by roasting a nitrate of mercury till nitrous fumes cease to be given off. The difference is in the physical state of the powders, the precipitated being amorphous, and much more finely divided than the red, which is crystalline.

Syrupus Hypophosphiticus.—Hypophosphites of lime, sodium, and potassium, one part each, dissolved with heat in syrup 100 parts.

Syrup of Hypophosphites of Calcium, Sodium, and Potassium: Churchill's Syrup.—Hypophosphite of calcium, 768 grains; hypophosphite of sodium, 512 grains; hypophosphite of potassium, 256 grains; water, boiling, 16 ounces; citric acid, 2 drachms; extract of

vanilla, $\frac{1}{2}$ ounce; syrup, 16 ounces. Dissolve the hypophosphites in the water, using the citric acid to dissolve the last portion; then add to the solution the syrup and the extract of Vanilla; filter through paper while warm. The above are the nearest we can find to what you want.

Tinctura Pruni Virginianæ.—*Scotus* wishes for a formula of this.

53/22. **Mushroom Juice**.—*S.C.B.H.*—The railway trucks full of mushrooms which travel from North Wales to London leave a long trail of mushroom juice along the track. There is no difficulty in obtaining it in quantity. Get mushrooms and submit them to gentle but continuous pressure in any suitable vessel, and the juice will run slowly off. The best ketchup is made by slightly breaking fine mushrooms, sprinkling them with salt, and collecting the juice which flows off without pressure during several days. An inferior quality is obtained by pressing the residue. Good ketchup will probably answer for mushroom juice in your sauce.

52/29. **Washing Powders, Extracts of Soap, &c.**—*W. H.*—Only three months ago, on page 243 of the June issue, we gave the very thing you ask for, with several other analyses of similar preparations. We may add another. **Henckel's Universal Waschmittel**, according to the *Industr. Blätter*, is silicate of soda, somewhat decomposed by atmospheric carbonic acid, and mixed with a little starch and soap.

52/36. **Gafton Bark, Silver Nitrate and Nitro-Hydrochloric Acid**.—*Cortex* has received the following recipe for horse medicine: "Gafton bark, liver of antimony, grains of paradise, red lavender, and dragon's blood." Gafton bark we never met with; perhaps some reader can enlighten us as to its nature. Red lavender we should explain as *Tinctura lavandulæ composita*, if the quantity asked for would mix with the powders without forming a paste.

Cortex says: "In 'Canning's Select Notes and Formulae,' page 113, I find a recipe for destroying warts, namely, 1 drachm of nitrate of silver dissolved in 1 oz. of nitro-muriatic acid; but I find that nitrate of silver will not dissolve in nitro-muriatic acid. I put it in the acid in a lump, and let it stay there a week, but it did not dissolve. I dissolved the nitrate in a little water, and added it to the acid, but it was precipitated; and to an extra quantity of nitric acid, but that was no use; and then I powdered the caustic and put it in the acid, but it would not dissolve." We have not the work at hand to refer to, but there is evidently some mistake either in "Cortex's" interpretation, or in the formula itself. Silver chloride would of course be immediately produced. This is soluble in 200 parts of strong hydrochloric acid, or in 50,000 parts of strong nitric acid, according to Pierre & Thorpe. We do not find it stated that it is more soluble in aqua regia.

51/4. *B.B.*—A formula for inseparable glycerine and lime cream was given in June and in August, 1878 (pp. 290 and 368), and again in July, 1879 (page 309).

53/19. **Vermin Killer**.—*H. W.*—Formula for vermin killers will be found in *THE CHEMIST AND DRUGGIST* for 1878, on pages 254 (*Eutodome*), 287 (*Gift. &c.*), 386 (*Getreide vergiftetes*, or *Gibson's poisoned wheat*). According to Hahn, *Hunter's infallible vermin and insect destroyer* is composed of powdered nux vomica, sugar, meal, and snails, or some other blue pigment. The same authority states that both *Battle's* and *Gibson's vermin killers* contain nux vomica. In England they are commonly believed to contain a grain and a half to two grains of *strychnine* in the 3d. packet. *Kwizda's Rattengift*, or rat poison (made by Apotheker Kwizda, Korneuberg), is composed of fresh beef suet three parts, powdered nux vomica one part, made into a cylindrical mass, weighing about 100 grammes (*Hager*). *Frau Lauterbach's* (Halle, Germany) **nonpoisonous rat pills** consist of white arsenic, meal, and some kind of fat. Each pill contains .7 grammes arsenic, .3 grammes fat, .26 grammes meal (*R. Henzig & Hager*). A coroner has suggested that as rats and mice cannot be made to vomit, vermin poisons might be made harmless to men by mixing a strong emetic with them.

53/3. *J. H.* **Syrup for Ginger Ale**.—We should advise you to use Hay's essence of ginger and simple syrups. You certainly will not be able to get a better flavour than this. You will find further details of Mr. Hay's preparation in our advertisement pages.

52/59. **Books on Perfumery**.—*Alpha*.—A new edition of Piesse's "Art of Perfumery" is announced by Messrs. Longman. Some useful notes on perfumes are given on pages 78 to 84 of the current *CHEMIST AND DRUGGIST'S* Diary, 1879. Snively's "Manufacture of Perfumes," London, Trübner, 1877, claims to be specially useful to small makers; and Dussance's "Perfumers' Guide," London, Trübner, 1868, is another useful book, price 20s. Cristiani's, R. S., "Perfumery and the Kindred Arts" is published by H. C. Baird & Co., of Philadelphia, at \$5. The "Complete Practical Treatise on Perfumery," by Arnold J. Cooley, is published by the same firm at a dollar and a half.

Drug Nomenclature.—Among some original specimens lately sent us we have received from A. J. A. (36/65) "Balocks and Hunney," "parragrack," "holoways," "extract hyoxymus," "antyburles pills," "Loddon," "some withen" (stone whitening). J. C. N. (2/51) is asked to prescribe for a child "sick and no apleight," for another troubled with "a dreadful roaring in his inside"; some one wants "a bottle of scent for diarrhoea in his head." Other requirements are "combination soda" (carbonate), "commode for the hair" (pomade), "bitter alice," "assissik assik" (acetic acid), "bricks" (borax), "fires of balsam," &c.

2/51. *J. C. N.*—It is difficult to tell what your crystals are under the doubtful circumstances named by you, but we expect they would turn out to be sulphate of lime.

Inquirer.—We do not think chemists' assistants, as such, are much better off in New Zealand than they are here. All skilled labour is useful there and is well paid for, but we have never heard of any special demand for chemists' assistants, and we would not recommend anyone to go out who was not able to turn his hand to other business and adapt himself to whatever circumstances might arise.

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*These are universally acknowledged to be the Genuine, and
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CAUTION. (The Proprietors of Kearsley's Original Widow Welch's Female Pills find it incumbent on them to caution the purchasers of these Pills against various imitations by parties who have no knowledge of their peculiar preparation, the Original Recipe having been sold to the late G. Kearsley, of Fleet Street, whose Widow found it necessary to make an Affidavit, for the protection of her property, in the year 1798. The Genuine Recipe for Widow Welch's Female Pills has been prepared by them for more than Seventy Years! Chemists are particularly requested to remark that, as a testimony of authenticity, each hill of directions contains an Affidavit, and bears the signature of "C. KEARSLEY" in writing, also engraved on the Government Stamp, and each box is wrapped in WHITE paper.

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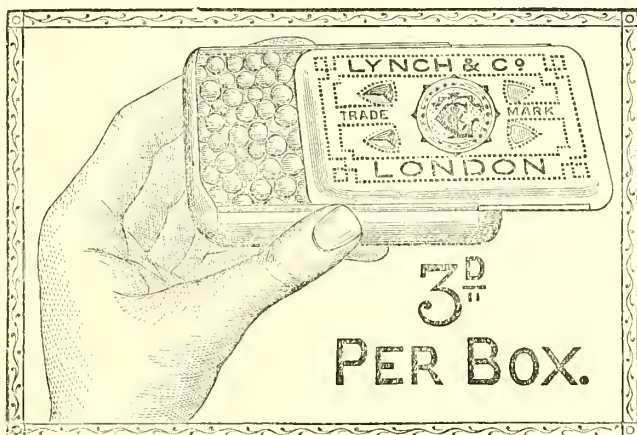
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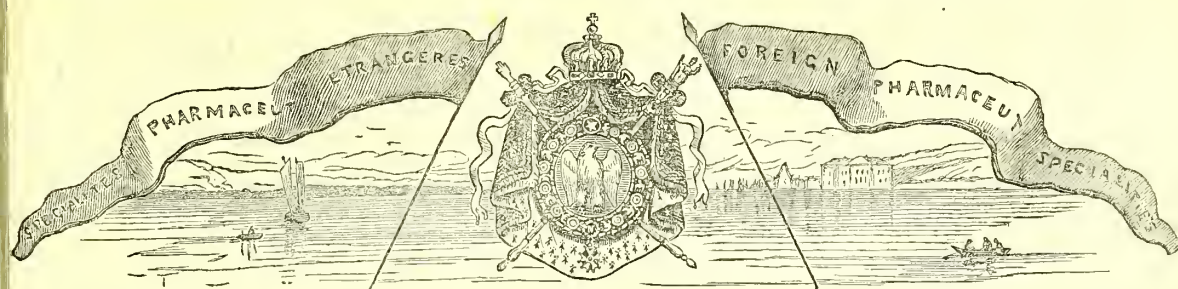
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3. Aubergier's Syrup	27/	4/6..Chassaing's Wine.....	36/	11/..Laville's Gout Tincture....	84/	4/6..Racahout	33/
4. " Pâte	13/	2/9.. " Pills	25/	11/.. " Pills	84/	5/0..Reynal's Bougies	42/
5. Bay Rum	54/	4/6..Clin's Bromide Camph. Caps	45/	2/3..Papier Fayard	13/	3/6..Ricord's Injection	24/
6. Ditto	27/	4/6.. " " Dragées	45/	1/1 1/2 Ditto	6/6	4/6.. " Capsules.....	34/
7. Belloc's Charcoal	16/	2/9..Dusart's Syrups	27/	4/6..Papier Fruneau	27/	8/0.. " Syrup	72/
8. " Lozenges	13/	4/6.. " Wines	36/	2/3.. Ditto	15/	2/0..Star Paper	15/
9. Blancard's Pills	30/	5/0..Eau Botot	42/	1/9..Pâté Aubergier	13/	2/6..Tamar Indien	21/
10. Ditto	18/	3/0.. " Ditto	26/	1/9.. " de Georgé	13/	2/9..Vallet's Pills	24/
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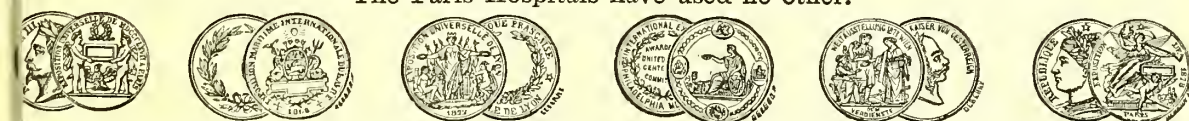
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A LITTLE more than a year ago a man came to London from America to introduce an article hitherto unknown to this country. He commenced operations by renting a *sub-basement* on Ludgate Hill, from whence he dispatched his goods on trial to all parts of the country. Success attended his efforts—so much so, that but a short time had elapsed before increased business necessitated the addition of another basement; and this prosperity continuing, he ultimately became the occupant of three basements and offices, exceeding in space by six times that first rented by him. In these extensive premises the business still further expanded, hundreds of parcels, almost, being dispatched daily from thence. In little less than one year it had grown to such magnitude that a still further increase of premises became absolutely necessary; and this man, once the tenant of a small sub-basement, now leases a large and entire building, adapted, at great expense, to the requirements of his business. The most astonishing point about this rapid and wonderful success is that it has been achieved with little or no advertising; for the reader will bear in mind that he has seldom, if ever, seen an advertisement in the newspapers concerning the article, which, by the way, is an “Extract of American Boots,” otherwise called “Mother Seigel’s Curative Syrup,” the proprietor of which is A. J. WHITE, of 21 Farringdon Road, London, E.C. The sale of the article is now so great that no less than £200 worth of revenue stamps are consumed weekly in compliance with the law, which fact alone will indicate the enormous proportions to which the business has attained. *Had the cost of these stamps been added to the price of the article, and the medicine sold at 2s. 9d., as most medicines are, instead of 2s. 6d., which is the price of the Curative Syrup, a profit of more than £10,000 yearly would have been made.* The weekly cash receipts have averaged £1,000 during the present year, and show the same decided upward tendency that they did twelve months ago, when they were but £100. An increase of *tenfold* in twelve months is thus shown to have taken place: may it not, therefore, be assumed that another twelve months will show a still further increase? The question that will now occur is—“How has this rapid and great success been attained?” It is answered—by the intrinsic worth of the medicine, which gains for itself the recommendation of all who use it, and it is by reason of this universal good report that the sales are increasing day by day.

Messrs. W. THOMAS & Co., of 153 High Street, Southampton, writing for nearly 200 bottles, say:—“The SYRUP sells marvellously.”

Mr. BARROW EVANS, Chemist, Derby, writes:—“June 26th, 1879. Mr. A. J. White, London. Dear Sir,—I find that since the 2nd December, 1878, I have sold upwards of £200 of MOTHER SEIGEL’S CURATIVE SYRUP, and I cannot remember that I have had a single complaint from all I have sold.”

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From Mr. J. CLEGG, Brunswick Street, Morley.—“Your CURATIVE SYRUP has cured a lady friend of ours of indigestion after trying a great many other medicines to no purpose.”

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Mr. HALES SIMPSON, 31 St. Botolph Street, Colchester, says:—“From nearly every bottle of MRS. SEIGEL’S SYRUP which I have sold I hear of its magic-like effects after a few doses. I have also heard of a great cure from one bottle only.”

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N.Y.



Orders should be
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SONS,**

MANAGERS,

Lyons,

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SEALED PACKAGES WILL CONTAIN, VIZ.:-

INTERNATIONAL PRIZE MEDAL; OLEUM MENTHÆ PIPERITÆ. In 18 21-oz. bottles—23, 10, 16 lbs. net in each case.
EXPOSITION UNIVERSELLE de 1867, a PARIS; HUILE DE MENTHE (Double Refined White Oleum Menthæ Piperitæ).

In 12 ¾-kilogramme bottles and 1 2-oz. sample bottle—20 lbs. net each case.

EXPOSITION UNIVERSELLE de 1867, a PARIS; and International Prize Medal Oleum Gaultheriæ. In 12 ½-lb. bottles—
18 lbs. net in each case.

INTERNATIONAL PRIZE MEDAL OLEUM SASSAFRAS. In 12 ½-lb. bottles—18 lbs. net in each case.

OLEUM MENTHÆ VIRIDIS, and all other American Official Oils, will be packed in 12 ¼-lb. bottles—15 lbs. net in each case.

FIELD'S LIQUOR TARAXACI.

Concentrated IN VACUO to a
Strength double that of the Succus Taraxaci of the Pharmacopœia.

The process by which this preparation is manufactured entirely excludes the injurious effects of Heat, Oxidation, and Fermentation. The active constituents remain quite uninjured; and, owing to the great care with which any incipient change is guarded against during the manufacture, this preparation **KEEPS PERFECTLY**, whilst the expressed Juice of the British Pharmacopœia, although containing 25 per cent. of Rectified Spirit, quickly becomes mawkishly sweet, through the conversion of its active constituents into inert saccharine matter.

Price 4/ per lb. W. Qts. 3/10

FIELD'S LIQUOR CINCHONÆ CORDIFOLIÆ.

This well-known preparation contains the whole of the active ingredients of Bark, and is manufactured with great care by a process specially devised for that purpose. It is made from the best Bark, and will be found a great desideratum to Druggists and Medical Men, as it furnishes a ready means of at once preparing Decoction of Bark quite equal to that made from fresh Bark.

Thirty minims of this Preparation, diluted to an ounce (with distilled water), forms the Decoctum Cinchonæ Flavæ of the Pharmacopœia.

Price 10/ per lb.

LIQUOR CINCHONÆ RUB.

1 fl. oz. equal to 1 oz. of Best Red Bark.

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Messrs. CLEAVER & Co. beg to call special attention to the following preparations. They may be depended upon for being made only from best drugs, and will keep for any length of time without formation of unsightly deposits.

Inf. Rosæ Acid. Conc.	...	...	2/6 per lb.	Ext. Ergotæ Liq.	...	...	...	3/6 per lb.
" Gentian. Co. Conc.	...	...	1/6 "	" Sarsæ. "	...	...	...	9/6 "
" Sengæ "	...	...	3/- "	" " <i>Specially purified from all</i>	...	...	...	12/- "
" Buchu "	...	...	1/6 "	" " <i>mucilaginous matter</i>	...	...	...	2/8 "
Dec. Sarsæ. Co. Conc.	...	...	4/- "	" Glycyrrhizæ Liq.	...	...	...	2/- "
" Aloes " "	...	...	4/6 "	Succ. Taraxaci, B.P. ...	...	...	...	2/- "

Conf. Sennæ, warranted very active 1/6 " | Liq. Sennæ Dulc. 2/6 "

Special attention is called to these preparations of Senna which are made entirely from Alexandrian Senna.

Can be obtained of all Wholesale Houses, or direct from the Manufacturers,

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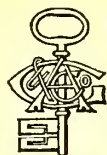
Wholesale Pharmaceutical Chemists,

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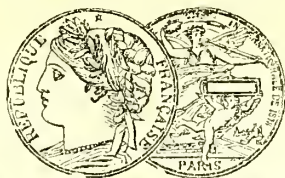
SPECIALTE:—

Concentrated Infusions, Liquid Extracts, &c., prepared in Vacuo from selected drugs only, at prices same as charged by all Wholesale Houses.

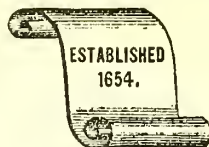
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SILVER MEDAL,
INTERNATIONAL
EXHIBITION,
PARIS, 1878.



SILVER MEDAL,
INTERNATIONAL
EXHIBITION,
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GEORGE ATKINSON & CO.,

(Late ATKINSON & BIGGAR),

CHEMISTS, DRUG GRINDERS, &c.,

66 Aldersgate Street, London, E.C.,

Manufacturers of

Potass. Iodid., Potass. Bromid., Ammon. Bromid., Iodine Resublimed,
AND OTHER CHEMICALS.

CAMPHOR REFINERS. LINSEED CRUSHERS.

All our preparations, guaranteed pure, can be obtained of any of the leading Wholesale Druggists throughout the United Kingdom.

PRECIPITATED SULPHUR, B.P.,

SOFT, PURE, AND SUPERIOR COLOUR,

MANUFACTURED BY DUNN & COMPY.

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STIRLING CHEMICAL WORKS, WEST HAM, E.

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MANUFACTURERS OF

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CHEMICALS for Analysis.

SPECIAL PREPARATIONS:—

HYDROGEN PEROXIDE
ZODOFORM

FRUIT ESSENCES
FERRUGINOUS SYRUPS

SCALE PREPARATIONS, &c.

EARP & CHASTER, RUNCORN,

Makers of PURE NITRIC, HYDROCHLORIC, and
SULPHURIC ACIDS,

PURE '880 LIQUOR AMMONIA, &c.

Quantities of five dozen Winchesters delivered free within fifty miles. Goods for Export delivered free on Board Liverpool. Being the only makers near the port of Liverpool, E. & C. can offer great advantages to Shippers to America.

GOLD MEDAL, PARIS, 1878.

T. & H. SMITH & CO.,

EDINBURGH & LONDON,

MANUFACTURERS OF

SALTS OF MORPHIA, PURE CHLOROFORM, SALICINE, &c.

R. Pulv. Opii Rect
(Swan & Proctor)

RECTIFIED OPIUM

Is Turkey Opium of Standard Quality.

It is distinguished from crude Opium of commerce by its freedom from Narcotine, Fat, Caoutchouc, and odorous matter, and by its unvarying strength as regards Morphia, of which alkaloid it invariably contains 10 per cent. when powdered, or 9 per cent. when in mass.

The Trade will find the above Powder the most satisfactory kind of Opium for preparing the tincture, sedative solution, and, indeed, for every pharmaceutical preparation into which Opium enters.

Present Price—Powder, 30s. per lb.; Mass, in 1-lb. Blocks, 27s., subject to fluctuation.

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SWAN & PROCTOR,
MANUFACTURING PHARMACISTS,
NEWCASTLE-ON-TYNE.

METHYLENE
(BICHLORIDE).
Discovered to be a general Anæsthetic by Dr. RICHARDSON in 1867.
1-lb. Bottles, 16s.; 8-oz., 8s. 6d.; 4-oz., 4s. 6d.; 2-oz., 2s. 6d.
COMPOUND ANÆSTHETIC ETHER,
For producing Local Anæsthesia.
In 4-oz., 10-oz., and 20-oz. Stopped Bottles, 2s., 4s., and 7s.
OZONIC ETHER.
In 4-oz. and 16-oz. Stopped Bottles, 3s. 6d. and 12s.
PEROXIDE OF HYDROGEN.
First introduced as a Medicine by Dr. RICHARDSON.
STYPTIC COLLOID,
For promoting the Healing of Wounds by the first intention.
In 2 oz. and 4-oz. Bottles, with brush, 2s. 6d. and 4s. 6d.; 16-oz., 12s.
CHARCOAL CAPSULES,
Containing pure Vegetable Ivory Charcoal. In Boxes, 2s. 6d. each.
ETHYLATE OF SODIUM,
For destroying Nævi and other Vascular Growths.
Vide *Lancet*, Nov. 9th, 1878.
In ½-oz. and 1-oz. Bottles, with elongated Stoppers for applying the Caustic, 2s. 6d. and 4s.

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TRADE MARK.



This Preparation, originated by us Eight Years since, can be obtained direct or through the Wholesale Houses.

4s. per lb.

SYMES & CO., LIVERPOOL.

HEATHFIELD'S
Liquor Opii Sedativus,

By "BATTLETT'S PROCESS,"
Guaranteed precisely as made in the laboratory, and under the superintendence of the late Richard Battley.
Can be procured from the principal Patent Medicine Dealers and Wholesale Druggists, or at
12 WILSON STREET, FINSBURY.

DUNCAN, FLOCKHART & CO.,

Wholesale and Export Druggists, Edinburgh.

CHLOROFORM

Prepared from Pure and Methylated Spirit.

Put up in all sizes of bottles. A strap with Name and Trade Mark of the Firm is placed over the stopper of each bottle. For Export, in bottles corked and luted (stoppers attached) and in hermetically sealed flasks when required.

N.B.—We guarantee our Chloroform prepared from METHYLATED SPIRIT to be PURE CHLOROFORM, answering all the tests of the British Pharmacopœia.

CHLORIC ETHER.

LIQUOR RHEI DULC. | LIQUOR SENNÆ DULC. | SYR. FERRI PHOS. CO. (PARRISH).

Fluid Extracts, Concentrated Infusions, and all Pharmacopœial Preparations.

MANUFACTURERS OF THE CELEBRATED

Blue Black Writing Ink and Copying Ink.

SHIPPERS SUPPLIED ON LIBERAL TERMS.

White Gutta Percha for Stopping Teeth, in 6d. and 1s. Boxes.

Medicated Pessaries, Suppositories, and Bougies, prepared with either Cacao Butter or Gelatine.

DUNCAN, FLOCKHART & Co.'s shape—the Minié bullet—approved by the Medical Faculty throughout the country.

CURTIS & CO., 48 Baker Street, London, W.,

Begin to direct the attention of Buyers to their superior Manufactures of Concentrated Infusions, Concentrated Decoctions, Extracts, Expressed Juices, Liquors, Tinctures, and Wines.

Also the following Specialities:—
The GENUINE SYRUP of "EASTON'S" SUPERPHOSPHATE of IRON, QUININE, & STRYCHNINE.
Pronounced by the highest Medical authority to possess tonic powers far exceeding all other preparations. Medical Men when ordering will oblige by writing "EASTON'S SYRUP (CURTIS)".

LIQUOR SECALIS (CURTIS).

Prepared by the authority of the late President of the Obstetrical Society in 1859. Still maintains its character as a most reliable preparation of Ergot.

OR HEALING POWDER, for Burns, Ulcers, Eruptions, Abrasions of Tender and Irritable Skins.
A preparation which has for years stood the test of Medical experience, as possessing healing Properties of the most marked and rapid character.

Sold at 1s. 1½d., 2s. 9d., 4s. 6d., 9s., and 18s., by all Chemists, Druggists, &c., throughout the World.

PASMA

J. F. MACFARLAN & CO.,

EDINBURGH AND LONDON,

Manufacturers of

MORPHIA AND ITS SALTS, *And all Products from Opium; also* PURE CHLOROFORM.

Answering all the Tests of the British Pharmacopœia.

Is extensively used in the Hospitals and by Private Practitioners, and is rapidly superseding the expensive Alcoholic Preparation.

MAY BE HAD FROM ALL THE WHOLESALE HOUSES, AND AT

17 North Bridge, Edinburgh, and 5 Barge Yard, Bucklersbury, London.

BURGOYNE, BURBIDGES, CYRIAX & FARRIES,

16 COLEMAN STREET, LONDON,

WHOLESALE AND EXPORT DRUGGISTS, MANUFACTURING PHARMACEUTICAL CHEMISTS,
IMPORTERS AND DISTILLERS OF DRUGS, ESSENTIAL OILS, &c.

PRIZE MEDAL, PARIS, 1861; SILVER MEDAL, PARIS, 1878.

Drugs, Chemicals, and Pharmaceutical Preparations of the finest quality and of standard excellence;
Pure Chemicals and Alcoholic Preparations for Analytical purposes and original research.

COD LIVER OIL (NEW SEASON'S),

Carefully freed from all animal matter, stearine, &c.; very pale; does not deposit, and remains sweet for any length of time.

GRANULAR EFFERVESCENT CITRATE OF MAGNESIA,

And all other Effervescent Preparations of our own manufacture.

REGISTERED] **PEPTOLEINE** [REGISTERED

FOR USE IN CONSUMPTION AND OTHER WASTING DISEASES.

Introduced by PETER GOWAN, M.D., C.M., B.Sc. (Edin.), Author of "Consumption, its Nature, Curability," &c., Late Physician and Surgeon to the King of Siam, Officer of the most Exalted Order of the White Elephant of Siam.

This elegant preparation is an Emulsion, containing 50 per cent. of the purest Cod Liver Oil, rendered palatable by the addition of aromatics, and is, we venture to assert, the best form for administering Cod Liver Oil hitherto brought before the notice of the Medical Profession and the Public.

MANUFACTURED SOLELY BY OURSELVES.

PHOTOGRAPHIC CHEMICALS (of special purity) and APPARATUS, &c.

ALL NEW REMEDIES AND PREPARATIONS KEPT IN STOCK.

SOLE CONSIGNEES OF JOBST'S PURE QUININE,

KAHLBAUM'S ALCOHOLIC PREPARATIONS, ETC.

SOLE CONSIGNEES for the UNITED KINGDOM of

SALICYLIC ACID and all SALICYLIC SALTS,

AFTER KOLBE'S PATENT.

SALICYLIC ACID PUT UP IN SUITABLE SIZES FOR DOMESTIC PURPOSES.

2/9, 5/-, 7/6, and 32/- per Dozen Boxes.

SOLUBLE SALICYLIC ACID WAFERS

(Each containing $\frac{7}{8}$ grains).

SALICYLATED COLD CREAM.

SALICYLIC FOOT & WOUND OINTMENT.

SALICYLATED LINT.

IMPORTANT NOTICE.

13 KING STREET, CHEAPSIDE: April 25th, 1879.

"SIR,—Permit us to call your attention to the recent Judgment of Vice-Chancellor Sir JAMES BACON, in the Action of VON HEYDEN v. MAX NEUSTADT & Co., referred to in our previous Circular. By the Judgment, which is reported in the several Daily Papers of the 24th instant, the validity of the Plaintiff's (Professor KOLBE's) Patent has been established, and a perpetual Injunction has been granted, restraining the Defendants, Max Neustadt & Co., of No. 55 Mincing Lane, E.C., from selling Salicylic Acid, and from using Professor KOLBE's invention, and from parting with the possession, otherwise than to the Plaintiff, of any Salicylic Acid manufactured according thereto as may be in their possession. The Defendants are also ordered to account for all profits derived by them from the sale of Salicylic Acid manufactured as aforesaid, and to pay to the Plaintiff the amount of such profits and the Costs of the Action. This decision establishes Dr. VON HEYDEN's monopoly to manufacture and sell Salicylic Acid in this Country.—Very obediently yours,
VAN SANDAU & CUMMING, Solicitors for Dr. Von Heyden."

BURGOYNE, BURBIDGES, CYRIAX & FARRIES, 16 COLEMAN ST., LONDON.

Price Lists, Samples, and Special Quotations on Application.

CORBYN, STACEY & CO.,

Wholesale and Export Druggists,
300 HIGH HOLBORN, LONDON, W.C.

An obvious and necessary preventative of accidents from Chloral is to sell and dispense only a **UNIFORM** and **GUARANTEED** preparation, such as **LIEBREICH'S SYRUP OF CHLORAL**, which has received the approval of the general Medical Press in Great Britain. The strength is the same as that of the official preparation, viz, Ten Grains of Chloral in each Fluid Drachm. Bottles bearing Dr. O. Liebreich's Signature and the name of Corbyn, Stacey & Co., 2s. and 3s. 6d. each; and 1 pound bottles for Dispensing.

Pepsin-Essenz-Liebreich.—"The researches of Panum and Preyer have shown that of the various solutions the best is the Pepsin-Essenz of Oscar Liebreich." Bottles, 3s. each, bearing the name of the **SOLE AGENTS**, Corbyn, Stacey & Co.

Chaulmoogra Oil—Ol. Gynocardia.—The official remedy in India for Leprosy, Scrofula, Skin Diseases, and Rheumatism; Secondary Syphilis and Ringworm have also been successfully treated with it. It is subject to constant adulteration. CORBYN & Co.'s Oil is expressed from the **fresh seeds**; and is pure. See the *Pharmacopœia of India*, and also Mr. Lepage's Pamphlet (post free 1s.). Bottles, 4s. 6d. Perles or Small Capsules, Boxes, 2s.; Ointment in Pots, 1s. 9d., 3s., 10s. 6d. each.

Malt Extract (*in vacuo*), with Cod Liver Oil, with Iron, with the Hypophosphites, &c.

Menthol—Crystallized Oil of Peppermint.—Highly recommended in the Medical Papers as a remedy for Neuralgia, Toothache, Sciatica, and nerve pains generally.

CORBYN & CO.'S General Prices-Current will be sent to the Trade on application.



TROMMER'S EXTRACT OF MALT

In the following Combinations, viz.:-

TROMMER'S EXTRACT OF MALT with Hops.

TROMMER'S EXTRACT OF MALT with Cod-Liver Oil.

TROMMER'S EXTRACT OF MALT with Hypophosphites.

TROMMER'S EXTRACT OF MALT with Pyrophosphate of Iron.

PREPARED BY—

TROMMER EXTRACT OF MALT COMPANY, FREMONT, OHIO, U.S.

The attention of Chemists is respectfully invited to the profit resulting to them by supplying these Preparations to Surgeons, viz., on the 4/6 size, 1/4 each, and on the 7/- size, 2/3 each.

SOLE WHOLESALE AGENTS—

**LYNCH & CO., 171a & 171b Aldersgate St.,
LONDON, E.C.**

N.B.—FULL DESCRIPTIVE PAMPHLET FORWARDED POST FREE ON RECEIPT OF APPLICATION.

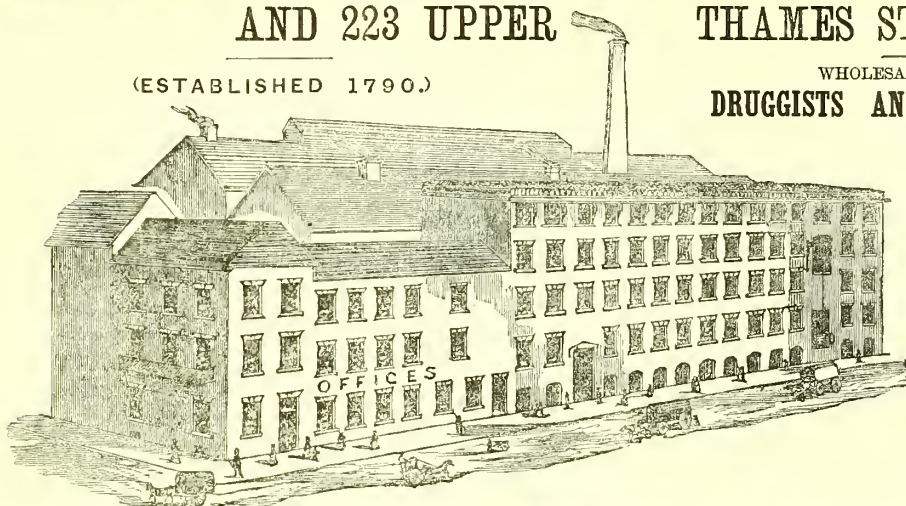
WYLEYS & CO., COVENTRY,

LABORATORIES AND DRUG MILLS AT COVENTRY.

AND 223 UPPER

THAMES ST., E.C.

(ESTABLISHED 1790.)



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DRUGGISTS AND DRUG GRINDERS.

MAKERS OF THE FOLLOWING SPECIALITIES:

Myrtus Chekan Infusion—
Fluid Extract and Fluid (see
Phar. Journal, Feb. 8, 1879).
Oleum Morrhuæ cum Calcis
Hypophos.
Chino Quinine.
Extractum Filicis Maris Liq.
(from Native Rhizomes).
Extractum Cocæ Liq.
" Gelsem. Semp. Liq.
" Guarana Liq.
Liq. Bisthmuthi (Wyley).
Spts. Æther Nit.
Sp. Ammon. Aromat.
Extracts of all kinds.
Concentrated Infusions.
Granular Preparations, &c.

DRUGS, CHEMICALS, AND PHARMACEUTICAL PREPARATIONS.

BARRON, SQUIRE & CO.

(LATE DREW, BARRON, & CO.),

WHOLESALE & EXPORT DRUGGISTS.

BUSH LANE, LONDON, E.C.,

MANUFACTURERS OF ALL DESCRIPTIONS OF PHARMACEUTICAL PREPARATIONS,

Beg to inform Merchants, Shippers, &c., that all Indents entrusted to them will receive careful attention and prompt execution.

Messrs. B., S. & Co. request the attention of their friends and the Trade, at home and abroad, to their having PURCHASED THE BUSINESS of Messrs. JAMES BASS & SONS, Hatton Garden, and with it the various Formulæ from which their Special Preparations have been made, and pledge themselves to supply them in all their integrity.

Specimens of these Preparations have remained in the Museum of Kew Gardens during 23 years without deterioration.

BATTLEY'S

Liquor Opii Sedat., Liquor Cinchon. Cord., Liq.
Cinchon. Pallid., et Liquor Secalis Cornuti.

Messrs. BATTLEY & WATTS

(Successors to the late RICHARD BATTLEY, and the only makers of his Liquors)

Caution the Public against using any Preparations under the above name, unless the autograph of "RICH. BATTLEY" is over each Cork and on the Label attached to each Bottle, *without which none is genuine*. The above are only prepared at the Laboratory, Cripplegate, London, by BATTLEY & WATTS.

The following Paper by HENRY DEANE, F.L.S., and HENRY B. BRADY, F.L.S., was read, amongst others, at the Bath Meeting of the British Pharmaceutical Conference, September 1864:—

LIQUOR OPII SEDATIVUS.

The striking appearance resulting from the evaporation of Battley's Sedative (Plate III., Fig. 1) first drew our attention to the mode of investigation now described. We have examined it frequently and always have met with the same characters. The slides present an almost opaque mass of crystals of morphine salts and codeine, with a very small portion of narcotine (and meconic acid?), and so far as we have observed, complete absence of resinous matter and narceine. *Anyone who has studied the microscopic characters of this preparation will readily understand how it has kept its place with the profession in spite of the cheap imitations which have been so largely puffed as substitutes for it.* Though we have experimented much with a view to preparing a similar liquor, we have not yet arrived at an identical result. Of three makes which we have examined, one (Plate III., Fig. 5) is largely charged with resinous matter, and the proportion of crystalline constituents is so minute that we are satisfied its activity must be very small; another (Plate III., Fig. 4) gives a few morphine crystals, a good deal of narcotine, and more narceine; a third (Plate III., Fig. 6) is chiefly remarkable for its lack of everything crystalline.

32 Lower Whitecross Street, Cripplegate, London.



FREEMAN'S CHLORODYNE



THE ORIGINAL AND ONLY TRUE.

Discovered and Invented by **RICHARD FREEMAN** in 1844.

It is one of those preparations so well known as having something in its composition which defies the imitator, and makes it an invaluable remedy. No other remedy known can be exhibited with so much confidence as a **SEDATIVE**, an **ANTI-SPASMODIC**, an **ASTRINGENT**, an **ANODYNE**, or **DIAPHORETIC**.

In its composition and effect it bears no resemblance to any of the many formulæ published, but has curative and chemical properties peculiarly its own, nor is there any analytical test for it. It has been found by the Profession and large numbers of the public to succeed after all imitations had failed, and maintains its unaltered position as the only reliable **CHLORODYNE**.

The following are presented as specimens of the many communications received by R. F. :—

From **JOHN TANNER, M.D. L.R.C.P., M.R.C.S., L.S.A., L.M.,**
Physician to the Farringdon Dispensary.

"It gives me great pleasure to bear testimony in favour of **FREEMAN'S Chlorodyne**. I have prescribed it extensively, and find it in every respect far superior to any of the spurious compounds sold under the name of Chlorodyne. In cases of Asthma, Chronic Bronchitis, the last stage of Phthisis, and the Winter Cough of the Aged, I have never found any substitute or chemical combination its equal; moreover, in all cases where a sedative is required, it is a certain, safe, and agreeable remedy."

From **DAVID EASTON, M.D., B.A., L.R.C.S.,** Medical Officer to the Rhins of Galloway Poorhouse, Stranraer, Wigtownshire, Scotland.

"I consider your Chlorodyne a valuable remedy. It has succeeded perfectly in those cases in which I have used it. In its action it is uniform, and in its effects most efficacious."

From **C. SWABY SMITH, M.R.C.S. Eng., L.S.A.,** Surgeon to the Berks and Hants Extension Railway Works and Pewsey Union
Author of "On the Treatment of Diphtheritic Sore Throat," &c.

"Having been in the habit of using **Mr. FREEMAN'S Chlorodyne** for some time past, I have much pleasure in stating that it has never failed to have the desired effect in whatever case it has been administered."

IMPORTANT CAUTION.—Four Chancery Suits terminated in favour of **FREEMAN'S ORIGINAL CHLORODYNE** and against Collis Browne and Davenport. Lord Chancellor Selbourne, Lord Justice James, and Lord Justice Mellish condemned their proceedings, and decreed them to pay all costs. Reports of the suits in "Times," January 12 and July 13, 1864, and April 29 and July 24, 1873, and "British Medical Journal," May 3, 1873.

Sold in Bottles, 1s. 1½d.; 2 oz., 2s. 9d.; 4 oz., 4s. 6d.; 8 oz., 9s.; 10 oz., 11s.; and 20 oz., 20s. each; and for dispensing only in bottles, fl. 8 oz. 8s., and fl. 20 oz. 18s. (in weight one pound and a half). A liberal discount allowed. Special quotations given for quantities for Hospitals, Workhouses, Infirmarys, and other Public Medical Institutions. Full directions in various languages.

SOLE MANUFACTURER—

RICHARD FREEMAN, PHARMACIST, 70 KENNINGTON PARK ROAD, LONDON, S.E.

RELIEF FROM COUGH IN TEN MINUTES.

HAYMAN'S BALSAM OF HOREHOUND



Is the most certain and **SPEEDY REMEDY** for all **DISORDERS** of the **CHEST** and **LUNGS**. In Asthma and Consumption, Bronchitis, Coughs, Influenza, Difficulty of Breathing, Spitting Blood, Whooping Cough, Hoarseness, Loss of Voice, &c., this Balsam gives instantaneous relief, and, a properly persevered with, scarcely ever fails to effect a rapid cure. It has now been tried for many years, has an established reputation, and many thousands have been benefited by its use.

IT HAS A MOST PLEASANT TASTE.

IMPORTANT TESTIMONIAL.—"AMPORT FINS, ANDOVER, MAY 29, 1869.—Sir, I have for some years had your Balsam of Horehound for Mrs. B. Webster, and intended writing to tell you how much benefit she has derived. She was considered consumptive, but the Balsam has quite restored her, and she is now quite strong. I have recommended your dozens of customers, and all have been pleased with it.—I am, yours, &c., H. B. WEBSTER.

Mr. HOBBS, Chemist, Mildenhall, writes to say :—"One of my customers says your Balsam is worth sixpence a drop."

IN THE NURSERY it is invaluable, as children are fond of it and take it eagerly. Immediately it is taken coughing ceases, restlessness is gone, and refreshing sleep ensues. No lady who has once tried it would ever afterwards be without it.

Prepared only by **A. HAYMAN, Chemist, Neath**; and sold by all Chemists. Price 1s. 1½d. and 2s. 9d. per Bottle.

WHOLESALE AGENTS.—W. Sutton & Co.; Barclay & Sons; Newbery & Sons, &c., London; Felton, Grimwade & Co., Melbourne; Elliott Brothers, Sydney and Brisbane, Australia; Kempthorne, Prosser & Co., Auckland and Dunedin, New Zealand; Smith, Stanistreet & Co., Calcutta.

THE ACME OF PERFECTION.

SHAPED PLASTERS.

Emp. Belladonna, Opium, &c.

Spread on White Leather, with

ADHESIVE MARGIN.

Shape	Size	Shape	Size
Square	4½ × 5½	Oblong	6½ × 11
Oval	5 × 7	"	7 × 13½
Saddle	4½ × 9½	Heart	5 × 7
Oblong	4½ × 7	"	6½ × 8½
"	5½ × 9½	For Breast	7 diameter
"	6 × 8½		

Terms on application to the Sole Manufacturers,

GOOSEY & ROGERS, Chemists,
Stepney, London, E.

Can be ordered through any Wholesale House.

SMITH'S

INVALUABLE

PILE POWDERS.

Price 1s. 1½d. per Box.

A proved Cure of Piles and Preventive of
Fistula.

"MAY BE IMPLICITLY RELIED ON."

PREPARED BY

W. F. SMITH, M.P.S., Walworth, London.

To be had of the usual Houses.

ED. LOEFLUND'S (of Stuttgart) Genuine Extracts of Malt.

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Numerous Extracts of Malt have lately been brought into the English market, of which some are not prepared from pure barley malt alone, but are mixed with wheat and oats; others contain more or less Diastase, the presence of which exposes the Extract to deterioration in a short time; others again are not sufficiently concentrated, thereby liable to fermentation in hot weather, and in consequence unfit for export; some are even fermented into a liquid resembling beer.

Contrary to the above-named preparations, the pure genuine Extract of Malt, as prescribed by the late Professor Liebig, and subsequently adopted by the German Pharmacopœia, has to be prepared exclusively from pure barley malt, is to be free from any Diastase, and reduced by steam in vacuo to the proper thickness of an Extract and not to a Syrup.

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MR. LOEFLUND has, for the last 12 years, in the manufacture of his Extract strictly adhered to the special prescription of Baron Liebig, who proposed to him personally the production of this Dietetic, the excellent qualities of which have been recognised by First-class distinction at all the large Exhibitions of Paris, Moscow, Vienna, Philadelphia, &c.

All these Preparations are filled in 10-oz. bottles. Orders to be addressed to the following depôts—Barclay & Sons, Butler & Crispe, W. Edwards & Son, Lynch & Co., W. Mather, R. H. Millard & Sons, S. Maw, Son & Thompson, F. Newbery & Sons, John Sanger & Sons, W. Sutton & Co., all of London.

HOFF'S MALT EXTRACT.

THE ORIGINAL AND ONLY GENUINE.

HOFF'S MALT EXTRACT

Is beneficial in cases of weakened or diseased digestion, in obstinate catarrhs and coughs, hoarseness, catarrhal diseases of the bronchial tubes, in cases of incipient and progressive tubercular consumption, and in cases of bodily weakness and exhaustion.

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This valuable preparation has, by its own intrinsic merit, earned for itself a reputation far surpassing all others, and possesses the most numerous and most valuable testimonials of any other in the world.

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Pamphlets, with directions for use, Testimonials, and distinctions from Emperors, Kings, Princes, and Physicians, with Medals from learned Societies, may be had (post free) of the Sole Consignee,

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IMPORTANT NOTICE.—Every Bottle bears the British Government Stamp, with the words, Dr. Lalor's Phosphodyne, London, England, by Order of Her Majesty's Honourable Commissioners. If not, it is a Forgery.

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OF BAY HOUSE, 32 GAISFORD STREET, LONDON, ENGLAND,

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Is prepared to Prove the following Facts in any Court of Law in London, England, and he respectfully requests Medicine Vendors and the Public to assist the cause of Truth and Right, against Falsehood and Fraud:

A BASE FRAUD is now being perpetrated by the Advertisement of a Worthless Imitation of **DR. LALOR'S PHOSPHODYNE** in the Newspaper Press of India and the Colonies, the nature of which may be guessed from the fact that the originators of these Advertisements **DO NOT** and **DARE NOT** insert them in the Papers Published in the United Kingdom; neither may the Spurious Article, sought to be Foisted upon the Public Abroad, **BE SOLD** in the British Isles.

PHOSPHODYNE was discovered and so named by **DR. R. D. LALOR**, in the year 1862, and the Title and Prospectus was duly Registered at Stationers' Hall, London, in the year 1864. This Title and Prospectus, and four of Dr. Lalor's Testimonials (the dates of which have been fraudulently altered from 1865, 1866, and 1867, as in the Original Letters, to 1870), have been Basely Pirated by the parties Advertising the False Phosphodyne. Copies of Original Letters, with Prospectus, sent post free.

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Are admitted by all who use them to be the best for safe, easy, and quick teething. These powders have been used a great many years for children when cutting their teeth, or affected with convulsions, fevers, thrush, colds, eruptions, or almost any ailment whatever. They have saved thousands from their graves. Give them a trial. In boxes, at 1s. 1½d. and 2s. 9d. A great saving in the 2s. 9d. boxes.

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Are acknowledged to be the best family medicine known. This fine medicine is a direct purifier of the blood, good for indigestion, pain in the stomach, as fullness after meals; faintness, heartburn, stomach, liver, and kidney complaints; blotches of the skin, coughs, colds, bronchitis, and influenza, lowness of spirits, &c. They are wonderfully adapted for females of all ages. A gentle but effective tonic made genial to the taste. These pills are of great advantage to emigrants in preventing sea sickness.



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Twenty years' success, as proved by unsolicited Testimonials from Medical Men in almost every town and village in the kingdom, has produced imitations likely to bring a useful invention into disrepute, as a large percentage of the Varnished Pills made to imitate ours pass through the stomach unaltered.

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AN EXCELLENT PILL FOR
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Sold by all Chemists and Patent Medicine Dealers, in Boxes, at 7½d., 13½d., and 2s. 9d. each; or post free from the Proprietor, ROBERT HENRY LOWE, 187 Bilston Road, Wolverhampton, upon receipt of the price in Postage Stamps. Patent Medicine Vendors supplied with handbills with Name and Address upon receipt of card or label.

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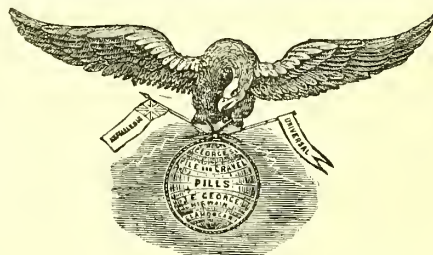
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Which have been before the public for thirty years, and which have become one of the leading and best selling Patent Medicines at the present day, are now offered to the notice of all

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All Patent Medicine Dealers will find Beecham's Pills one of the most profitable, and one of the best selling articles in the market. The demand for them is regularly increasing, and all Foreign Patent Medicine Dealers are reminded of the fact that there is no risk to run in getting in a stock of Beecham's Pills, as they are used by all classes of society, and are by thousands declared to be

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For a Weak Stomach, Impaired Digestion, and all Disorders of the Liver, they act like "MAGIC," and a few doses will be found to work wonders on the most important organs in the human machine. They strengthen the whole muscular system, restore the long-lost complexion, bring back the keen edge of appetite, and arouse into action, with the ROSE-BUD of health, the whole physical energy of the human frame. These are "FACTS" admitted by thousands, embracing all classes of society, and one of the best guarantees to the Nervous and Debilitated is, BEECHAM'S PILLS have the LARGEST SALE of any Patent Medicine in England.

All Foreign Houses who are desirous of getting a First-Class Patent Medicine are respectfully requested to get Beecham's Pills from the leading Wholesale Houses in England (as no business will be done with any Foreign House by the Proprietor direct).

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WHAT IS GOUT? WHAT IS RHEUMATISM? WHAT IS RHEUMATIG GOUT?

Those who suffer from these distressing maladies care little what the theoretical reply to the above questions may be, nor do we care to further afflict them with scientific supposition. The question is, **WHAT WILL REMOVE THEM?** what will allay the agonising pain, remove the cause from the system, and restore the afflicted one to a normal state of health and wonted agility? The question has been asked for years, but no satisfactory reply has been given, no *certain* cure recommended, until the discovery of Lindley's celebrated Gout and Rheumatic Pills. Since their introduction thousands have taken them, and there has never been one instance wherein they have been taken in vain!

Unfortunately there are so many so-called "remedies" recommended by so many well-meaning but irresponsible and often misinformed or ignorant people, as well as so many nostrums, introduced by charlatans into the market, that frequently enough the patient, after having tried a dozen or so different compounds without avail, comes to the conclusion that all specifics are alike—that nothing can be of any use, and that the ills from which he so constantly and so severely suffers are absolutely incurable. The wonder is, that after having been drenched with such a variety of compounds, he remains as well as he is. Let this be as it may, we have no hesitation in asserting (and it is confirmed by a multitude of testimonials) that **LINDLEY'S GOUT and RHEUMATIC PILLS** are the undoubted antidotes for **GOUT, RHEUMATIC GOUT, RHEUMATISM, SCIATICA, LUMBAGO, TIC-DOULOUREUX**, &c., more particularly and especially if used in connection with **LINDLEY'S RHEUMATIC EMBROCATION**. Words are of course valueless unless they convey truths; but we defy any statement to be impugned which conveys this fact, that the above remedies have not only no equal, but are infallible.

LINDLEY'S RHEUMATIC EMBROCATION is the most effective external remedy known, as it instantly removes all excruciating pain, from whatever cause, including rheumatic gout, lumbago, sciatica, tic-douloureux, &c. By merely spreading over the affected parts on the ends of the fingers, or on spongy piline, the pain, no matter how severe, is instantaneously removed.

Mr. Inspector **STRAW**, of the Sheffield Borough Police Force, wrote on January 3, 1879:—

"When I called at your shop two days ago I was quite unable to walk about without a stick, and then with difficulty. I took six of your pills at three times, which were given to me by Wm. Bailly, of 52 Earl Street, Sheffield, and on the following morning I was, I am happy to say, as sound as ever. I feel now able almost to challenge Weston at a mile."

WILM. SCHELLER, of Giessen, Germany, wrote on June 15, 1879:—

"I received a box of your rheumatic pills and a bottle of the liniment from a friend, a few days ago, which I have proved to be the best remedies and specifics I have ever used for sciatic pains, and I am thankful to have found such."

On May 19, 1879, Dr. **FRANCIS XAVIER** and **DON ALFREDO AGOSTINHO CORREA**, of Lisbon, Portugal, say:—

"We have tried your gout and rheumatic pills and embrocation, and find them the best we have ever used. You will greatly oblige by sending at earliest convenience one dozen boxes pills and one dozen bottles embrocation, each 2s. 9d. size."

Mr. **WILLIAM ROWAN**, 139 Cedar Street, New York, U.S. America, wrote on May 19, 1879:—

"Mr. Lindley. Dear Sir.—The gout having come upon me very bad, I had to take to your pills—the old remedy. I got completely rid of it again after three doses, having contracted it by carelessly exposing myself to the severe damp and cold weather. A friend of mine out here, who has suffered very severely of late from rheumatic gout, asked me for a remedy; I gave him six of your never-failing pills, which very promptly made him a sound man again. As my stock of your pills is running very low I am very anxious to get a fresh supply; please forward by return mail 1 (one) large box (11s. size), to the above address, and believe me, yours truly,
WILLIAM ROWAN."

The above Pills and Embrocation are prepared solely by the Proprietor,

HENRY LINDLEY, Chemist, 57 South Street Moor, Sheffield

(Five years Principal Assistant to Robert Lathbury, Liverpool, Chemist by Special Appointment to the Queen).

Sold retail in boxes, 1s. 1½d., 2s. 9d., 4s. 6d., and 11s. each; and the Embrocation in bottles at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s. each.

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CLARKE'S WORLD FAMED BLOOD MIXTURE, The Great BLOOD PURIFIER and RESTORER.

(Registered Trade Mark—"BLOOD MIXTURE.")

The Celebrated CURE FOR Scrofula, Scurvy, Blood and Skin Diseases, and Sores of all kinds.

Wholesale of all the Wholesale Houses, at 24s. and 108s. per dozen, less the usual discount.

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CAUTION.—Mr. CLARKE will take immediate proceedings against all persons pirating his Trade Mark, "Blood Mixture," Labels, Wrapper, or Advertisements, or in any way infringing his rights.

DINNEFORD'S FLUID MAGNESIA.



PERFECT IN PURITY AND UNIFORM IN STRENGTH.

Sold by all Wholesale Druggists, and by the Manufacturers,

**DINNEFORD & CO.,
Pharmaceutical Chemists,
180 NEW BOND STREET, LONDON.**

PEPSINA PORCI.

Messrs. J. LLOYD BULLOCK & CO.

Beg to direct the attention of the Profession to the Experiments upon "Medicinal Pepsine" by Professor Tuson, recorded in the *Lancet*, August 13th, 1870, which incontestably prove the very great superiority of their Preparation in point of digestive power over every other Pepsin, British or foreign, a pre-eminence maintained to the present time. Dose—two to four grains.

A copy of Professor Tuson's Paper will be forwarded on application.

3 Hanover Street Hanover Square, London, W.

Dr. J. COLLIS BROWNE'S CHLORODYNE.

THE ORIGINAL AND ONLY GENUINE.

IMPORTANT CAUTIONS

From Lord Chancellor SELBORNE, Vice-Chancellor Sir W. PAGE WOOD,
and the LORDS JUSTICES OF APPEAL.

VICE-CHANCELLOR SIR W. PAGE WOOD, by whom the suit in Chancery was first heard, stated in his judgment that 'Dr. J. Collis Browne was undoubtedly the Inventor of Chlorodyne, that the whole story of the Defendant Freeman was as deliberately untrue as the falsehood he had deposed to with reference to the use of his Chlorodyne in the Hospital.'

The VICE-CHANCELLOR also stated, 'that Chlorodyne was a fanciful name, and had application been made sooner, the Court would have given Dr. Browne protection.'

LORD CHANCELLOR SELBORNE coincided with the judgment of the Vice-Chancellor upon this point, and stated 'that had application been made at a proper time and place, the Court would have found means to restrain the Defendant from misrepresenting the decision of the Vice-Chancellor.'

LORD JUSTICE JAMES, on appeal, stated in his judgment, 'that the Defendant Freeman had made a deliberate misrepresentation of the decision of Vice-Chancellor Wood.'

It was proved in Court, on affidavit by Mrs. Forbes, of Paris, that the testimonial published in the *Times*, November 14th, 1865, speaking of the great efficacy of Chlorodyne in Cholera, referred to Dr. J. Collis Browne's Chlorodyne, and that she never used any other, that she had written to the Defendant Freeman to that effect; notwithstanding which notice the Defendant publishes the said testimonial as referring to his medicine.

The Editor of the *Medical Times*, in his report on Chlorodyne, January 13th, 1866, gives information that the Chlorodyne referred to was the medicine introduced by a retired Army Medical Officer, which was Dr. J. Collis Browne; still this is published by the Defendant as testimony to his medicine.

Numerous affidavits from eminent Physicians and others were produced in Court, stating that Dr. J. Collis Browne was the inventor of Chlorodyne, and that when prescribing they mean no other.

The Defendant himself publishes that his compound is in effect and composition quite different to any other preparation nevertheless he assumes the name, testimonials, &c., of Chlorodyne.

Technicalities in law prevent that protection which the public should justly have against such a course of conduct. It is now incumbent on all who purchase Chlorodyne to see that the name, 'Dr. J. Collis Browne's Chlorodyne,' is engraved on the Government Stamp, as it is not sold otherwise. All other compounds under the name of Chlorodyne are spurious. All attempts at analysis have failed; hence the statement that the constituents of Chlorodyne are known is a misrepresentation.

FURTHER IMPORTANT NOTICE.

The subjoined list of eminent Firms concur with Vice-Chancellor Sir W. Page Wood's statement in Court, that Dr. Collis Browne was undoubtedly the Inventor of Chlorodyne; and that when Chlorodyne, or the Original Chlorodyne, is ordered, they invariably supply Dr. J. Collis Browne's:—

Apothecaries' Hall,	London.	Gale & Co.,	London.	Newbery & Sons,	London.
Allen, Hanbury & Co.,	"	Giles & Son,	Clifton.	Oldham, G., & Co.,	Dublin.
Baiss Brothers,	"	Goulding, Messrs.	Cork.	Parsons & Richardson,	Leicester.
Banks & Richards,	Birmingham.	Gratton & Co.,	Belfast.	Peake, Allen & Co.,	Dublin.
Barron, Harvey & Co.,	London.	Grimwade, Ridley,	London.	Raimes & Co.,	Liverpool.
Bell, John, & Co.,	"	Grindley & Son,	Chester.	Raimes & Co.,	York.
Corbyn & Co.,	"	Hearon, Squire & Francis,	London.	Raimes, Blanshards & Co.,	Edinburgh.
Cox & Gould,	"	Hodgkinson, Tonge & Stead,	"	Sang & Barker,	"
Curling & Co.,	"	Hopkins & Williams	"	Sanger, J., & Sons,	London.
Curtis & Co.,	"	Hunt & Co.,	Exeter.	Sim, James, & Co.,	Aberdeen.
Davy, M'Murdo & Co.,	"	Hunt, A., & Co.,	"	Smeeton, W.,	Leeds.
Drew, Barron & Co.,	"	Johnson, J. H. & S.,	Liverpool.	Southall & Co.,	Birmingham.
Drew, B., & Alexander,	"	Langton, W., & Co.,	London.	Sutton, W., & Co.	London.
Dunn & Company,	"	Lynch & Co.,	"	Tomlinson, Hayward & Co.,	Lincoln.
Edwards, W.,	"	Mander, Weaver,	Wolverhampton.	Treacher, Hodgkinson & Co.,	"
Evans, Gadd & Co.,	Exeter.	Marsden & Sons,	London.	Westrup, J. B.,	Kensington.
Evans, Lescher & Evans,	London.	Maw & Son,	"	Westwood & Hopkins,	Lincoln.
Ferris & Co.,	Bristol.	Meggeson & Co.	"	Woolley, James,	Manchester.
Foulger, S., & Son,	London.	Mackay, John,	Edinburgh.	Wyleys & Brown,	Coventry.
Frazer & Green,	Glasgow.	Morson, T., & Son,	London.	Yates & Co.,	London.

After these public statements in a Court of Equity, and subsequent confirmation by the trade at large, no Chemist can conscientiously use or sell any other compound for Chlorodyne without committing a breach of faith, unjust to patient and physician. The value of the remedy alone creates the great demand.

Sold in Bottles—1s. 1½d., 2s. 9d., 4s. 6d., and 11s. Usual Discount to the Profession.

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GREAT REDUCTION IN PRICE OF THE CELEBRATED AMERICAN PATENT RECESS LABELLED SHOP ROUNDS.

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Size.	Height.	FLINT GLASS.		BLUE GLASS.		per dozen.
		N.M.	W.M.	N.M.	W.M.	
4 ounce	5½ inches	12/	14/	14/	16/	
8 "	7 "	14/	16/	16/	19/	"
16 "	8 "	15/	17/	18/	20/	"
20 "	9 "	16/	18/	19/	21/	"

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Made Vials.	1/4	1dr.	2dr.	4oz.	1oz.	1½oz.	2oz.	3oz.	4oz.	6oz.	8oz.
Blue Chlorodyne, octagons	2/9	3/3	3/9	4/3	4/9	6/	7/	8/3	9/6	10/6	
Homoeopathic, plain or spouted..	3/	3/3	3/9	4/6	5/	6/	7/3	9/	10/	12/	
White flint, tall, medium, or squat round octagon or graduated to tea-spoons ..	2/6	3/	3/6	4/	4/6	5/9	6/9	7/9	10/	12/	
Green glass, ditto ..	2/3	2/9	3/3	3/9	4/3	5/6	6/3	7/	9/6	10/6	
Round shouldered, lime and glycerine ..	2/9	3/3	3/9	4/3	4/9	6/	7/	7/6	9/	11/6	
Ditto, ditto, wide mouth	2/9	3/3	3/9	4/3	4/9	6/	7/	7/6	9/	11/6	
Essences. —White flint glass, round, oval, and square..	4/6	5/6	7/	8/	9/	9/					
Lubin's or Oldham, square ..	4/9	5/9	7/3	8/3	9/3	9/3					
Rimmel or Cannon's, round ..	5/	6/	7/6	8/6	9/6	9/6					
Laveuders, round neck, squares ..	5/	6/	7/6	8/6	10/	10/	12/	15/			
Ditto Oxford ..	5/	6/	7/6	8/6	10/	10/	12/	15/			
White Flint Pomades.											
Round, lipped, or turned back mouths ..	3/3	4/	6/	8/	8/9	9/	10/				
Ditto, ditto, stoppered ..	—	—	14/	16/	18/	19/	20/	25/	30/		
Oval or round, black caps ..	—	—	—	11/	12/	14/	16/6				
Ditto, boxwood caps ..	—	—	—	15/	16/	19/	22/				
Round boxwood, screw caps ..	—	—	—	17/	18/	20/	24/				
Squat, boxwood screw caps ..	—	—	—	—	18/	20/	24/				
Blue Fluted Poison ..	—	4/	5/	6/	8/	10/	12/	14/	15/		

Patent Medicines and Proprietary Goods, as Powell's, Floriline, Kay's Linseed, Winslow's Syrup, Atkinson's Preservative, Seigel's Syrup—Green glass .. 3/3 3/9 5/6 6/ 7/ 8/ 9/ 10/ 12/

Five gross quantities, name plate charged, 5/.

Kali and Quinine. 4oz. 1oz. 1½oz. 2oz. 3oz. 4oz. 8oz. Wide mouth, white flint .. 4/3 4/9 6/ 7/ 7/6 8/6 11/9

Dispensing Medicals. Any shape or gradua- 2oz. 3oz. 4oz. 6oz. 8oz. 10oz. 12oz. 16oz. 20oz. 24oz. tions, Blue or Green .. 7/ 7/ 8/ 9/6 9/6 11/6 14/ 16/ 19/ 22/

Dispensing (Water Blue) Medicals. Very best goods in the English market .. 9/ 10/ 10/ 11/6 11/6 15/ 18/ 22/ 28/ 28/

Name Plates free of charge, in Crates.

Citrate of Magnesia. Blue, plain .. 3oz. 7/6; 6oz. 9/6; 8oz. 12/

Ditto, ditto, fitted with boxwood top corks .. 12/6 14/6

* In 5-gross quantities, own name free of charge.

Mineral Water and Sauce Bottles. Long neck, squares and rounds, 5 or 6 oz. Sauce .. 9/ per gross. Round cork, lined and stoppered, as Lea & Perrin's, York Relish, &c. .. 11/6

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Soda, Lemon, and Seltzer, usual shapes and size .. 13/ per gross. Split sodas, &c. .. 10/6

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Dutch Drop, Oil, Gum, Ink, Polish Bottles, 1d. "Green Burst Off." Judson's Dye bottles, all at 2/6 per gross.

* We are frequently having new moulds made for these goods, and should gladly esteem inquiries for sizes, and quotations for quantities.

Ink, Oil, Polish, Gum, and Sauce; made mouths. Green glass .. 2oz., 6/; 3oz., 7/; 4 oz. 8/; 5oz., 9/; 6oz., 10/; 8oz., 12/.

Feeding Bottles. Straight green glass .. 10/

Straight white glass .. 13/

Curved neck green glass .. 10/

Curved neck white glass .. 13/

Fitted green glass, wood tops, corks, complete .. 30/

Fitted white glass, porcelain caps, one brush, packed in neat box, &c., complete .. 48/

Fitted white glass, superior manufacture, porcelain caps and unions, two brushes, ditto .. 60/

* Five Gross Orders we can include Name and Address on the bottle and box, free of extra charge.

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Earthenware unions .. 1/9

Glazed ditto .. 3/6

Boxwood ditto .. 0/9

Boxwood plug tops and cork rings .. 4/6

Glazed earthenware plugs and cork rings .. 6/6

Earthenware caps, cork lined .. 9/

Ditto ditto, superior manufacture, ivory glaze .. 10/6

Cork rings .. 1/

Vinegar, Pickle, Jelly, and Mustard Bottles. Imperial pickle quarts .. 22/

Reputed " " " " .. 21/

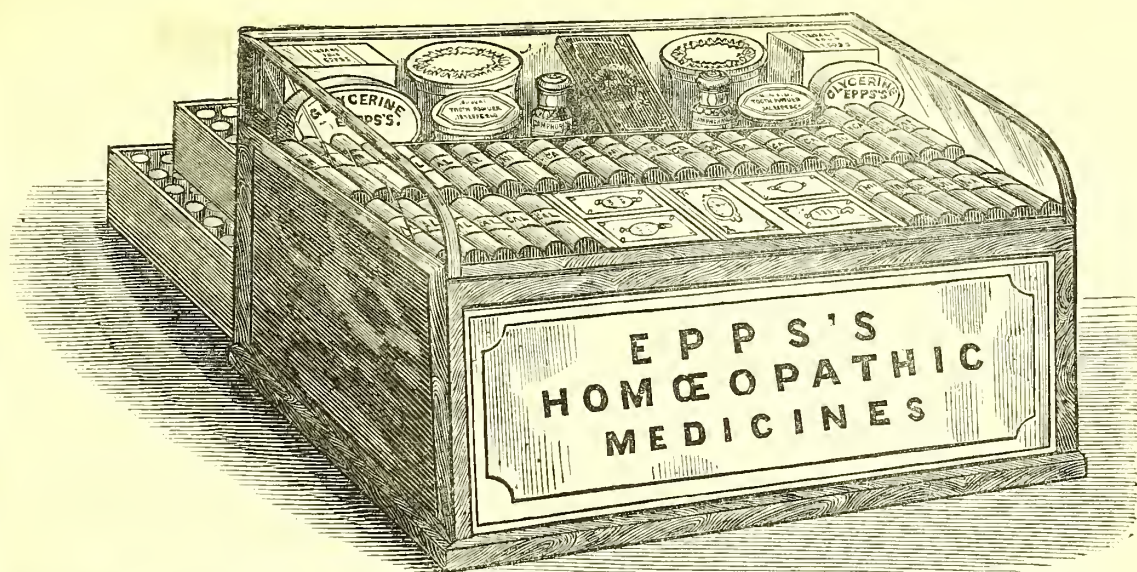
Pickle pints, large .. 15/6

" " small .. 14/6

" " half-pint .. 13/

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Large Peruvian Mixture Capsules	1/- box 3/-	Cubeb Oil and Copaiba -/8 box 2/0	No. 0 best ordinary size -/6 "	1/6
Do. French Cop. Capsules, cost the Chemists	-/9 ,, 2/6	Cop. Cubebs and Rh-tany	-/6 ,, 2/-	
Denoual's Injection, to ensure a radical cure in two days (see directions).				
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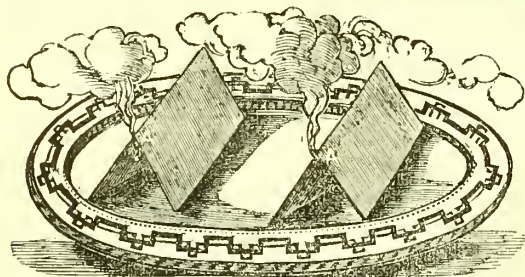
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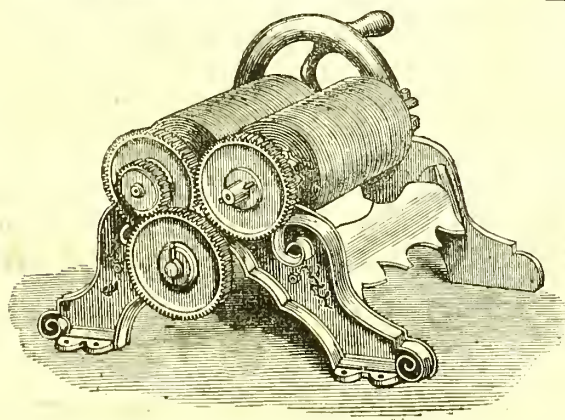
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Bills with name on application with instructions for forwarding.

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NESTLE'S MILK FOOD is highly recommended by the best medical authorities in all parts of the globe as a perfect diet.

Nestle's is the original and genuine Milk Food or Powder. The extensive demand for this Food, its well known superiority and universal recognition by the medical profession, have produced the inevitable imitations. The trade and the public are hereby cautioned. Nestle's Milk Food has stood the test of years. Take no other under any pretence whatever.

NESTLE'S MILK FOOD is put up in tins, packed in lined cases specially for the export trade. Is highly concentrated and in a perfectly dry state. Will keep good in any climate.

Our Wholesale Agents at any port will pack and ship the Food to or for any part of the world.

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Details of In-
junction granted
by V.-C. MALINS
will be found in
"Chemist and
Druggist," Feb-
ruary 15, 1877,
page 76.

Wholesale Price
Lists, Opinions
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will at all times
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MEDICATED LOZENGE MANUFACTURER,

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MAKER BY STEAM POWER OF MEDICATED AND HIGH-CLASS LOZENGES OF EVERY KIND.
Boiled Sugars, of the Finest Quality, Packed for Home or Export.
Fragrant Bouquet Lozenges, 100 in an Ounce, have an immense sale.

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Keep in any Climate, give great satisfaction, and have an increasing demand, especially in Africa and Australia. Put up in Tins, each containing 6 Dozen or 12 Dozen Cakes.

Price List, sent by post on application. Our Goods can be bought through any Wholesale House in London.

HONOURABLE MENTION, INTERNATIONAL EXHIBITION, 1862.

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Of every description, suitable for CHEMISTS, GROCERS, BREWERS, WINE COOPERS, &c., imported and cut by

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Orders accompanied by a remittance executed as under.—

R U S S I A N.No. 1, 13/- per lb.; No. 2, 11/6 per lb.;
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PACKED IN SMALL BOXES. 1s. per lb. EXTRA.

BEER IN BOTTLE.**WHITBREAD & CO.'S****LONDON COOPER, STOUTS, AND ALES.**

PRICE LISTS AND FULL PARTICULARS TO BE OBTAINED ON APPLICATION.

**ROBERT BAKER, SOLE AGENT,
277 GRAY'S INN ROAD.****MUSTARD.****FINCH, RICKMAN & CO.'S****Genuine Qualities**

Are made from the finest mustard seeds only. Their compounds, as manufactured for upwards of a century, are guaranteed free from all ingredients imparting spurious heat, and are therefore equally suitable for both table and medical purposes.

6 Broken Wharf, Upper Thames St., London.

E. LAZENBY & SON'S PICKLES,

Sauces, and Condiments.—E. LAZENBY & SON (6 Edwards Street, Portman Square), Sole Proprietors of the Celebrated Receipts, and Manufacturers of the Pickles, Sauces, and Condiments so long and favourably distinguished by their name, beg to remind the Public that every article prepared by them is guaranteed as entirely unadulterated. Manufactory, 18 Trinity Street, London, S.E.

HARVEY'S SAUCE.—CAUTION—The

admirers of this Celebrated Sauce are particularly requested to observe that each bottle prepared by E. LAZENBY & SON bears the label used so many years, signed "ELIZABETH LAZENBY."

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FRY'S COCOA EXTRACT,

IN PACKETS AND TINS.

Pure Cocoa only, with the superfluous oil extracted.

This pure and delicious Cocoa, consisting exclusively of choice Cocoa Nibs from which the superfluous oil has been extracted, is strongly recommended to all who appreciate the full flavour and fine aroma of Cocoa.

"If properly prepared, there is no nicer or more wholesome preparation of Cocoa."—*Food, Water, and Air*, Edited by Dr. HASSALL.

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1d., 3d., & 6d.

MAKES STARCH LINEN AS NEW.

Starched Linen is made to Iron Easier, and is unequalled for Stiffness and Gloss. Sold by most starch sellers, at 1d., 3d., and 6d. each. Wholesale by the Proprietor,

T. CRITCHLEY,**CHEMIST & WHOLESALE DRUGGIST
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CAUTION!—Makers and Sellers of imitations will be prosecuted.

SPECIAL NOTICE TO DRUGGISTS.

Increase your Business by Selling the ORIENTAL COMPANY'S TEA.

IN SUBMITTING THEIR TEAS to Agents, the above-named Company desire to offer the following remarks:—

THE PROPRIETORS have been long connected with the EAST, as IMPORT and EXPORT MERCHANTS, and, with the means at their command, are enabled to avail themselves of their experience in purchasing at the proper season, from the best markets, and direct from the TEA PLANTERS, thereby securing the choicest pickings, and saving all intermediate profits between producer and consumer.

THE TEAS being thus bought are carefully cut, sifted, and mixed by the most improved machinery, under the superintendence of a PRACTICAL TEAMAN, whose whole study has been devoted to the ART OF BLENDING TEAS to suit the Tastes of the general public; and it may be added that it is greatly due to judicious blending that the COMPANY'S TEAS have acquired the position they now hold.

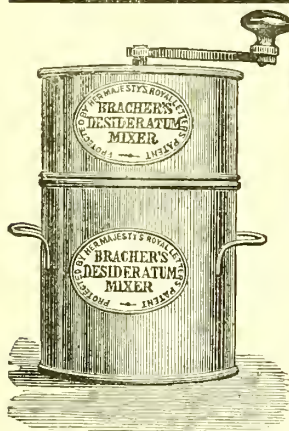
INDIAN TEAS have within the last few years obtained such favour with connoisseurs for Strength, Aroma, and Delicacy of Flavour, that THE ORIENTAL COMPANY have introduced, as a SPECIALTY, a blend of these fine Teas, the sale of which has attained such proportions as to warrant the assertion that it produces the most delicious beverage ever offered to the public.

THE TEAS are packed in specially-prepared wrappers, with TINFOIL LINING, in $\frac{1}{4}$ -lb., $\frac{1}{2}$ -lb., and 1-lb. Packets; 5-lb., 10-lb., and 20-lb. Tins; 20-lb. Boxes, Half-chests, and Chests; and retailed as under.

Fine China Blended Tea, Magenta Label								Retail at	2/0 per lb.
Finest	"	"	Blue	"	"	"	"	"	3/0
Fine Indian	"	"	Green	"	"	"	"	"	2/6
Finest	"	"	Yellow	"	"	"	"	"	4/0

For Terms of Agency and other particulars apply at the Office—

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THE PESTLE AND MORTAR SUPERSEDED BY
BRACHER'S "DESIDERATUM" MIXER,
For Mixing all descriptions of Powders, heavy or light.

ADVANTAGES.

These Machines are specially adapted for mixing Powders of all descriptions, either in small or large quantities, and are the most rapid and efficient Mixers in use. They can be used either with or without the cover, are portable, require no fixing, and can be readily taken apart when necessary.

Powders which contain concrete lumps are easily reduced, and in no case need the ingredients pass through the machine more than once.

The larger sizes discharge the contents by withdrawing a slide in the bottom of the Mixer.

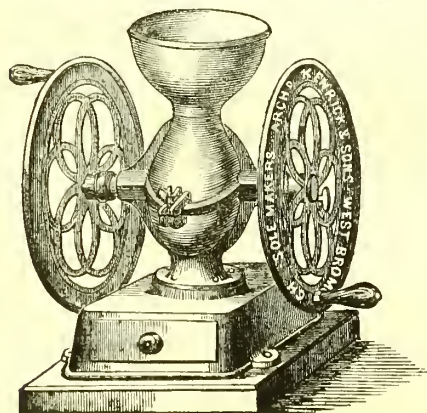
CAPABILITIES.

For CHEMISTS and DRUGGISTS they prove invaluable for mixing all kinds of Powders, such as Cattle Drenches, Horse and Cow Spices, Baking and Egg Powders, Sherbet, Lemon Kali, &c., &c.

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AMERICAN DRUG & SPICE MILL.

Advantages—

The cutters or grinders never wear out. Cutters or Grinders can be cleaned and refixed in one minute, thus any quantity of different articles can be ground without fear of intermixture.

Price No. 4a Mill, 70/-

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American Tincture Presses, 8/-, 12/-

Larger size if required.

See PHARMACEUTICAL JOURNAL, November 17, 1877, page 399.

SOLE AGENT,

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BRANSON'S COFFEE EXTRACT,

For the Immediate Production of Fine and Pure Coffee.

Owing to completed improvements in its manufacture

BRANSON'S COFFEE EXTRACT

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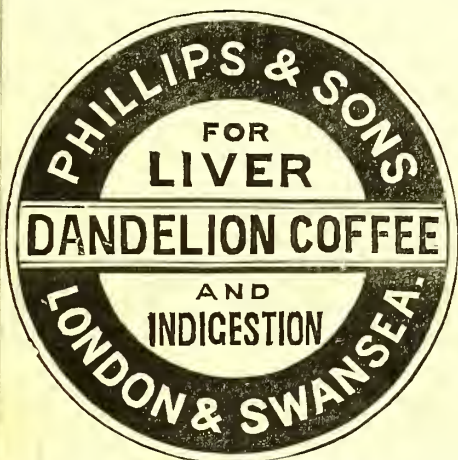
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IS the Best and the Cheapest, containing three times the strength of ordinary Coffee. The above is highly recommended by the Medical Faculty as an Agreeable, Palatable, and Medicinal BEVERAGE. See Reports from Dr. Hassall, M.D., Author of "Food and its Adulterations," &c.; also, Otto Hehner, F.C.S., Analyst. Sold in Tins, 6d., 1s., 1s. 9d., by most respectable Chemists. **Wholesale Agents:** Goodall, Backhouse & Co., Leeds; Wm. Mather, London; Jas. Woolley, Son & Co. and W. Mather, Manchester; H. Glover, Son & Co., Bradford; and all Wholesale Houses.

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MAKERS—BROOK & COMPANY, 76 HANOVER STREET, MANCHESTER.



ESTABLISHED 1760.

Contains three times the strength of ordinary Breakfast Beverages.

ONCE TRIED ALWAYS USED.

The valuable properties of the Dandelion Root, recognised by eminent Physicians for many centuries, has now become an article of daily use.

Sold by all Chemists throughout the Kingdom in Tins at 1s. 6d., 1s., 9d., and 6d.—*Price Lists on application to the Manufacturers.*

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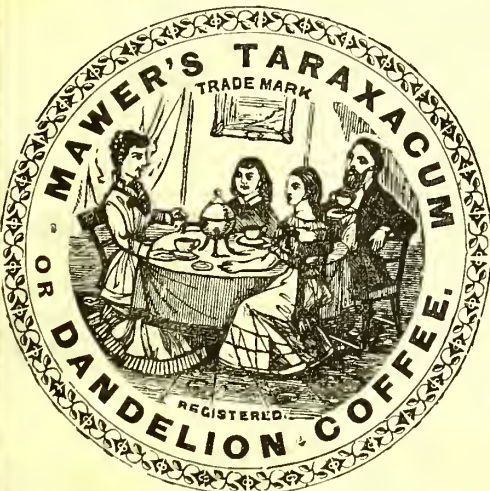
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Prepared from the Fresh Root.

Notwithstanding the many attempts to imitate this incomparable preparation, Mawer's manufacture continues to rise rapidly in public estimation, and the sales have of late immensely increased. Wherever it is introduced it meets with increasing appreciation and continuous sales, for beyond doubt it excels all in quality, strength, aroma, and cheapness.

Chemists everywhere find this the most saleable article of the name. It is neatly packed in air-tight tins, and is spoken well of throughout Great Britain and several of our Colonies. To be had from all London Patent Medicine and Sundry Houses, and direct from the Maker in Tins, 6d., 9d., 1s., 1s. 6d., and 2s. Write for terms to

EDWARD MAWER,
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Handbills and Show Cards supplied gratis.

Sold by Chemists everywhere.

THE BEST PACKET TEAS

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THE WATCH TEA.—Bonuses consist of Ladies' and Gentlemen's Watches with 14 and 28 pounds of Tea; also Clocks and Timepieces with 4, 6, 8, 10, 12, 18, and 24 pounds of Tea.

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THE T.S.A. GENERAL BONUS TEA.—Bonuses consist of a selection of nearly 500 Useful Articles, INCLUDING WATCHES, CLOCKS, and BOOKS, given with quantities of Tea varying from a Quarter-pound upwards.

Also SURPRISE TEA, containing a useful Bonus in every packet.

Also THE IMPERIAL BLEND, being a Non-Bonus Tea of first-class value, retailing at 2/-, 2/6, 2/8, 3/-, and 3/6 per pound.

AGENTS WANTED where none are already appointed. For particulars apply to G. BEAUMONT, Manager.

CHEMISTS' TEA AGENCY.

BROKEN-LEAF TEA, 1s. 8d. per lb.

A Money-saving Tea, absolutely pure, in half-pound packets 10d. The small leaf from fine India and China Teas, stronger, richer, and cheaper than any whole-leaf tea. Wholesale to Dealers and Sellers and Agents. 40 lbs. sent free to any railway station in the kingdom.—**WALKER & DALRYMPLE.** Warehouses—154 and 155 Whitechapel Road, London. P.O.O. payable at Head Office. Bankers—The National Provincial Bank of England. N.B.—Samples posted free.

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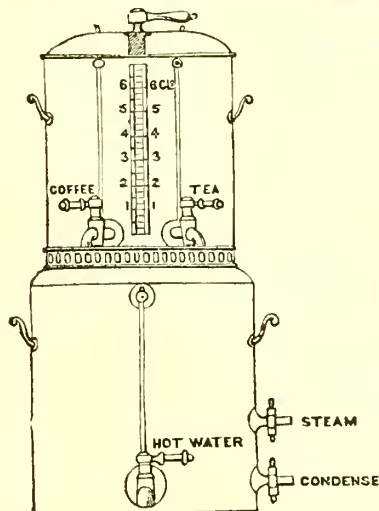


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THE PATENT PLUMBAGO CRUCIBLE COMPANY.

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Apparatus for making Extracts of Substances by Steam Pressure, for the use of Large Establishments, Steamers, Hotels, Coffee Taverns, Restaurants, and Cafés; also for Chemists to make Extracts or Infusions of Substances.

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On the same principle for Family use.

Great Economy, Excellent Aroma, Perfect Safety, and Cleanliness.

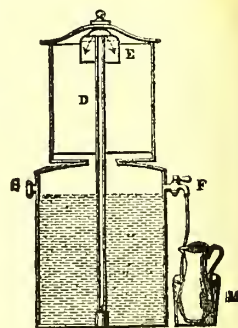
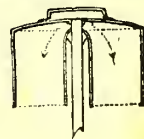
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PURE FLOUR OF EGYPTIAN LENTILS,

IN TINS OR IN BULK.

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MEDICATED LOZENGES, REFINED LIQUORICE, JUJUBES, &c.

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Lozenges of all descriptions made from Customers' private formulæ (or ingredients) and stamped with name if required.

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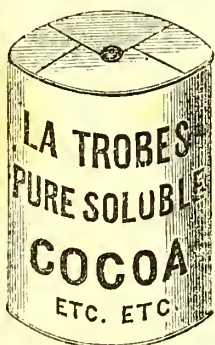
GEO. BARTH & CO.,

Manufacturers of Liquid Nitrous Oxide Gas and Anæsthetic Apparatus, &c.

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Supplied to Chemists only, all other
Trades refused.

H. L. T.'s production stands
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That the Trade may have an
opportunity of testing, H. L. T.
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La Trobe's

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Retailed in Canisters,

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CHOICE PACKED TOBACCOS.

Best Birdseye, in $\frac{1}{4}$ lb. tins; also $\frac{1}{4}$ lb., $\frac{1}{8}$ lb., $\frac{1}{16}$ lb. packets.

Superfine Birdseye, in $\frac{1}{4}$ lb. tins; also $\frac{1}{4}$ lb., $\frac{1}{8}$ lb., $\frac{1}{16}$ lb. "

Imperial Birdseye, Foil, 2 oz., 1 oz.

"Yellow Honey from Down
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This Tobacco is the most highly esteemed
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PACKED SHAG.

Superfine Shag ... $\frac{1}{4}$ lb., $\frac{1}{8}$ lb., $\frac{1}{16}$ lb.

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A Machine, with Dial and Water Gauges, to make 300 dozen per day	...	£30	0	0
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PURE AERATED WATERS.

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ESTABLISHED 1835.

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NEWPORT PAGNELL SODA WATER, containing
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AERATED WATER, without Alkali.

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LITHIA AND POTASH WATER.

SELTZER WATER, prepared according to Analysis of the
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EFFERVESCENT LEMONADE, superior in flavour
colourless, and warranted to retain its brilliancy.

Each Bottle is protected by a Label bearing the Signature of the Firm.

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QUALITY AND STRENGTH GUARANTEED.

Put up in best style in Plaid Boxes, 6s. per doz. Fancy Gold ditto, 7s. Gold, Enamelled, and Embossed, best hinged ditto, Gold Labels, &c., 7s. 6d. per doz. Ginger Beer and Lemonade Powders, 5s. per doz. Soda Powders, 3s. Sherbet, 7-lb. Bags, 8d. per lb. Chlorodyne, 6s. per lb.; W. Qts., 5s. 6d.

THOMAS KNOWLES,
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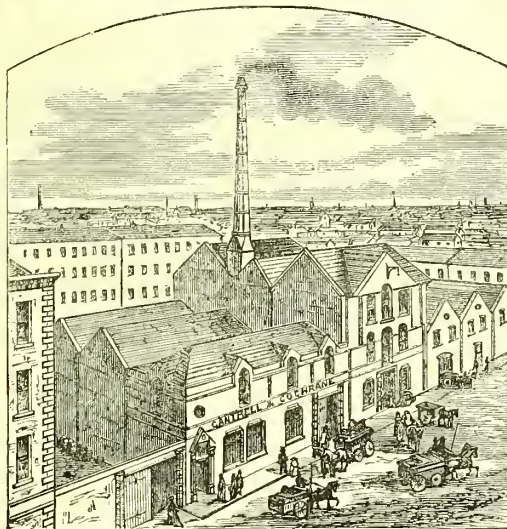
40 SEYMOUR STREET, EUSTON SQUARE, LONDON, N.W.

CANTRELL & COCHRANE,

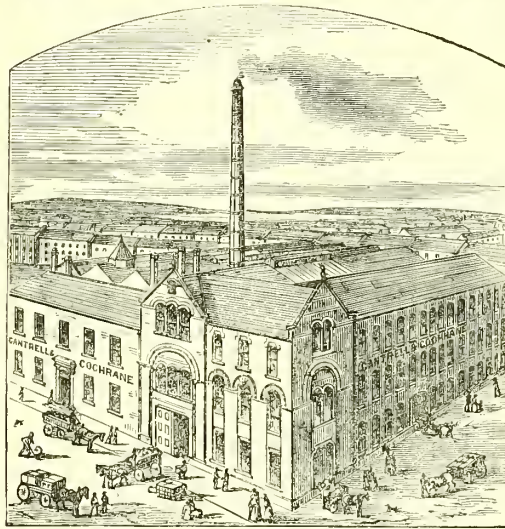
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ALL OUR DRINKS ARE NON-ALCOHOLIC.



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The following List of their preparations is worthy of the attention of Chemists:—

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Kali, or Potass Water.
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“MONTSERRAT” LIME JUICE CHAMPAGNE (Aerated).

The Machinery and Appliances used in the Laboratory and Factory for their production are of the most approved construction; the Water and all the Materials used are of the highest degree of purity; and as the greatest care is exercised in their manufacture, they may be relied on as absolutely free from organic and mineral contamination.

Testimonials from the MEDICAL PROFESSION, from accomplished ANALYSTS, and from PUBLIC MEN eminent in Literature, Science, and Art, at once give an assurance of the excellence of these Beverages, and show the universal esteem in which they are held.

INTERNATIONAL RECOGNITION has been given to their merits at various Exhibitions all over the World. Eight Gold and Prize Medals have been awarded.

All Goods ordered for Export are specially prepared and packed for their respective destinations, and are guaranteed to retain their qualities unimpaired. Terms and Prices may be obtained on application to—

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Nassau Place,
DUBLIN.

Cromac Building,
BELFAST.

14 & 16 Union Street,
EDINBURGH.

or, 53 Surrey Street,
GLASGOW.

PURVEYORS TO HER MAJESTY'S IMPERIAL HOUSES OF PARLIAMENT.

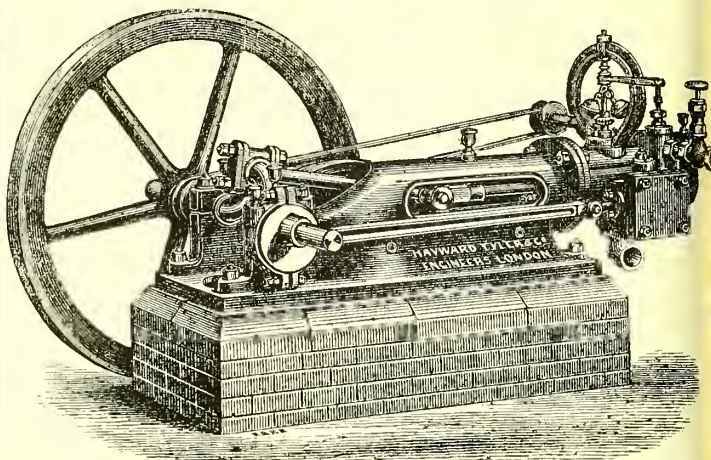
THE "BRAMAH" HORIZONTAL STEAM ENGINE,

Specially adapted for the Electric Light, Printers, Soda Water Makers, and small Factories generally.

PRICES AND DIMENSIONS.

GOLD MEDAL awarded at PARIS for Soda Water Machinery, besides TWO SILVER MEDALS for other Exhibits.

NOMINAL HORSE POWER .	1½	2½	3	4	5
Diameter of Cylinder	4"	5"	5½"	6½"	7"
Stroke of Engine	6"	6"	8"	8"	8"
Price of Engine, as above, complete	£18	£22	£27	£35	£40
Packing 2 to 3 % extra.					
Approx. length over all	4' 3"	4' 3"	5' 2"	5' 4"	5' 7"
" breadth	1' 10"	1' 10"	2' 3"	2' 3"	2' 5"
Diameter of Fly Wheel	2' 0"	2' 0"	2' 9"	3' 0"	3' 6"
Width of Face of Fly Wheel	3"	3"	3½"	3½"	4"
Diameter of Steam Pipe	1"	1"	1½"	1½"	1½"
" Exhaust Pipe	1"	1½"	1½"	2"	2"
Approx. Weight packed, and Fly Wheel . cwt.	6 1 0	7 1 0	8 2 0	9 2 0	10 2 0
Shipping Measurements and Fly Wheel .	Cases { 3' 11" x 1' 4" x 1' 2" Fly Wheel { 10" x 6" x 2' 10" Cases { 3' 11" x 1' 4" x 1' 2" Fly Wheel { 10" x 6" x 2' 10" Cases { 4' 6" x 1' 6" x 1' 4" Fly Wheel { 12" x 6" x 2' 10" Cases { 4' 8" x 1' 7" x 1' 4" Fly Wheel { 12" x 6" x 2' 10" Cases { 4' 11" x 1' 7" x 1' 4" Fly Wheel { 12" x 6" x 2' 10"				



Packing according to destination from 2½ to 5 per cent.

With strong rectangular bed-plate, wrought-iron crank shaft long enough for the fly-wheel and driving pulley to be put at either end. Governors of our own pattern combining simplicity with great accuracy of regulating power. Engines complete with long stroke feed pump driven direct from main crosshead, and detached at pleasure. Steam stop-valve and turned fly-wheel. Lubricators and Spanners.

SHAFTING, PLUMMER BLOCKS, AND ALL REQUISITES FOR STEAM FACTORIES SUPPLIED AND FIXED.

Makers: HAYWARD TYLER & CO., Engineers, 84 Whitecross St., London.

E. S. HINDLEY, BOURTON, DORSET.

SMALL STEAM ENGINES

(Economical in Fuel and in First Cost).

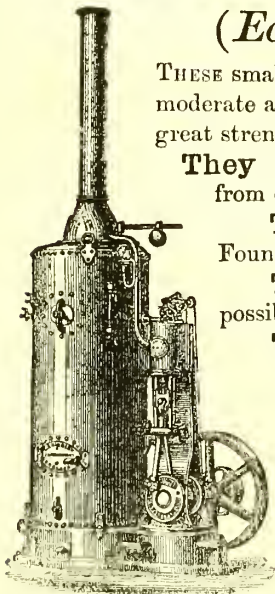
THESE small Engines are specially adapted for driving Soda Water Machinery wherever a moderate amount of cheap power is required. They combine simplicity, compactness, and great strength, are easily managed, occupy very little space, and require no fixing.

They are available at any time, as steam can be got up in half an hour from cold water.

They require no fixing, being erected on a Cast-Iron Water Tank Foundation.

They are simple in construction, and, having as few working parts as possible, are not likely to get out of repair.

They can be driven by a boy. Can be made to burn GAS instead of Coal.



Nominal horse power...	1	1½	2	3	4	5	6	8	10
Engine and Boiler combined . . . £	39	47	55	70	88	100	115	135	157
Engine and Boiler on three Wheels, with Handle.....£	41	49	57	75	95	110	125	145	167

ALL SIZES IN STOCK—DELIVERED FREE TO ANY STATION.

Illustrated Catalogues with full particulars on application.

PATENT SODA WATER BOTTLES.**BARRETT & ELSERS,**

9 DACRE STREET, WESTMINSTER, LONDON, S.W.

BY ROYAL LETTERS PATENT,



DATED JUNE 2, 1874, No. 1923.

The Best, Cheapest, and
Cleanest Stoppers before the
Trade.

In extensive use.

No Rubber ring that can
be taken out, or come out
and get detached from the
Bottle.

Great Saving effected.

No Marbles.

All Corks, Wires, String,
and Skilled Labour super-
added.



Easily and Rapidly Filled,
Opened, Cleansed & Washed

In universal demand.

No Small Chamber or Con-
tractions in the Neck to Pre-
vent Thorough Washing, &c.

No Marbles.

Perfectly Fitting Stoppers.

No Leakage.

EBONITE STOPPER

GLASS STOPPER

BARRETT & ELSERS' FILLING MACHINES AND SYRUP PUMP COMBINED have been proved to be the Best and
Cheapest in the market, of which now upwards of 1,000 have been sold.

IMPORTANT NOTICE.—Should the Bottles break, the Stoppers may be newly fitted up and used again in fresh
Bottles, thereby being a great saving and advantage over some other Patents.

MONDOLLOT'S PATENT**Soda Water Machinery,**

Continuous System without Gazometer.

**GOLD MEDAL AT THE PARIS EXHIBITION,
1878.**

Full particulars on application to the Sole Agents,

MESSRS. L. FRIQUET & CO..

13 LITTLE JAMES STREET, BEDFORD ROW,
LONDON, W.C.

Sole Agents also for BRIET'S GAZOGENES and SYPHONS.

IMPORTANT DESIDERATA ARE SUPPLIED IN



LIME JUICE

N.B.—
Exceedingly hand-
some Show-Cards, together
with Handbills of a most ex-
ceptionally respectable character, are
supplied to purchasers of these
professionally recommended
preparations.

LIME JUICE

WENHAM'S



WENHAM'S

CHALYBEATE

The only
Effervescent Salines
which do not exert a
physiological action upon the blood;
the converse of Lime Juice,
or fruit of any kind
whatsoever.

SALINE.



In BOTTLES, 2s. 6d. and 4s. 6d. each; CASES, 21s.

SOLE MANUFACTURERS (REGISTERED),

WHEELER & CO., LONDON, and SOUTHBEND-ON-SEA.

"Messrs. WHEELER & Co. have produced a REMARKABLY HANDSOME SHOW-CARD, representing a package of WENHAM'S LIME-JUICE SALINE, on a gold ground, with a border of lime fruit and blossoms."—CHEMIST AND DRUGGIST, Trade Notes, July, 1879.

THE LEAMINGTON

TRADE
"APNEUMATIC"
MARK

MINERAL WATERS

GINGER ALE (Aromatic).—There is now a large consumption in private families of this very popular beverage, its Aromatic properties and Brilliancy of Colour are perfection; part of a bottle may be used, and the remainder if re-corked will keep in perfect condition.

Apneumatic Soda Water.**Apneumatic Brighton Seltzer.****Apneumatic Potass Water.****Apneumatic Lithia Water.****Apneumatic Aerated Water.****Lemonade.**

Dr. A. H. HASSALL, in his recent Analysis, says:—"I have repeatedly Analysed the Aerated Waters manufactured by Messrs. Kinmond & Co., and have always been able to report thereon in terms of the highest praise."

Our terms are more favourable for a family trade than those of any first-class makers.

KINMOND & CO., late J. DAILY & CO., LEAMINGTON.

Trade List and Descriptive Pamphlet of the Apneumatic process free on application.

THE BRITISH SYPHON MANUFACTORY.**EUGSTER & KOERTGEN, PROPRIETORS,**

OFFICES: 2 Gresham Buildings, Basinghall St., E.C. }
WORKS: 6½ Wickham St., Tyers St., Lambeth, S.E. } **LONDON.**

SELTZOGENES.

3-pint size, Wire ..	13/-	3-pint size, Cane ..	13/6
5 " " " " ..	18/-	5 " " " " ..	19/-
8 " " " " ..	30/-		

Silver-plated tops, 5/ extra.

POWDERS—3-pint, 22/; 5-pint, 36/ per doz. boxes, containing 10 charges each.

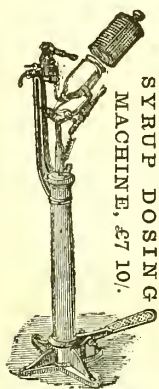
LIBERAL DISCOUNT.

SYPHONS.

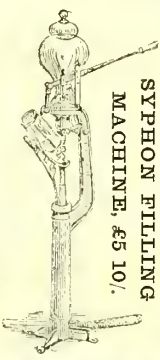
SHORT LEVERS, 22/6; LONG LEVERS, 24/ per doz. net.

White, Blue, Amber, or Green Bottles—cylindrical or oval shaped, with cap or spring tops—Silver-plated, from 8s. per dozen extra. Name stamped on Metal tops, free of charge for one gross. Name and Trade-mark engraved on the Bottles, by the acid process, from 1½d. to 2½d. each extra.

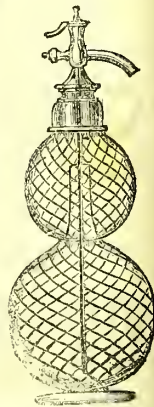
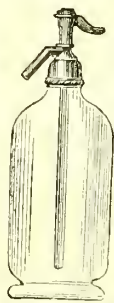
Each Seltzogene and Syphon thoroughly tested before sent out.

ALL METAL WARRANTED FREE FROM LEAD.

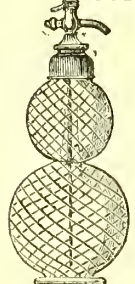
SYRUP DOSING MACHINE, £7 10/.



SYPHON FILLING MACHINE, £5 10/.



1878

**EUGENE GERAUT & CO.****NEW PATENT LEVER SELTZOGENES.**

For the immediate production of Eau de Vichy, Soda Water, Sparkling Lemonade, Aerated Waters.

First introduced by EUGENE GERAUT & Co. in 1853.

3-pint, wire, 13/; 5-pint, wire, 18/; 8-pint, wire, 30/.
Cane covered, 3-pint, 6d.; 5-pint, 1/; 8-pint, 2/ each extra.
Strongly silver-plated top, 5/ each extra. 3-pint size, strongly silver-plated, richly decorated porcelain stands, 30/ each; 5-pint size, ditto, ditto, 38/ each; 8-pint size, ditto, ditto, 48/ each.

Our well-known Seltzogenes are improved yearly, and have already stood a public test of upwards of Twenty Years, and are acknowledged as **THE VERY BEST.**

POWDERS FOR THE ABOVE.—Subject.—3-pint, per dozen boxes, 22/; 5-pint, ditto, 36/; 8-pint, ditto, 65/.

LIBERAL DISCOUNT FOR LARGE QUANTITIES.

1 & 2 CORPORATION BUILDINGS, FARRINGTON ROAD, LONDON, E.C.

1873.

SYPHONS.**IMPORTANT NOTICE.****Great Reduction in Price.**

Clear or coloured glass, pure **ENGLISH BLOCK TIN TOPS**, with piston or cap.

22/6 per dozen, for quantities of not less than one gross.

25/ per dozen, for less than one gross.

Packing in Cask, 5/ per gross.

The Name marked on the metals free of charge for quantities of not less than one gross.

The Name engraved on the glass for quantities of not less than one thousand, 2d. each extra.



1870.



LAMPLOUGH'S EFFERVESCENT PYRETIC SALINE.



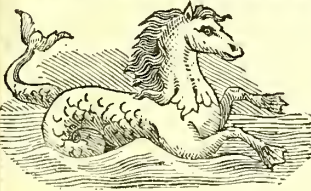
HAVE IT IN YOUR HOUSES AND TRAVELS, USING NO OTHER SALINE :
 it gives instant relief in Headaches, Sea or Bilious Sickness, and quickly cures the worst form of Eruptive or Skin Complaints. The various diseases arising from Constipation, the Liver, or Blood Impurities, Inoculation, the results of breathing air infected with Fevers, Measles, or Smallpox, are frequently prevented and certainly cured by its use.

The sale of these Saline Salts having greatly increased during the past few years, I beg most cordially to thank those who sell and recommend the same, and also to inform intending dealers that they will find Messrs. BARCLAY, EDWARDS, MAW, NEWBURY, SANGER, SUTTON, and the Wholesale Houses generally, ready to supply their wants. This Advertisement is found needful in consequence of the trouble, cost, and inconvenience in the keeping and collection of numerous small accounts. *Note.*—The Name, Trade Mark, Labels, Wrappers, &c., are all Registered and Entered at Stationers' Hall.



SPECIAL NOTICE.—Medical Gentlemen having fever cases, and desirous of trying the Saline, can have a single bottle at wholesale prices by sending their cards.

PARNELL'S CHALYBEATE SALINE.



REGISTERED TRADE MARK.

An Agreeable Cooling Febrifuge and Tonic Aperient Effervescent Salt, being a Chalybeate Water in a solid form.

ANALYTICAL REPORT BY DR. T. REDWOOD.

As the result of a careful analysis I am enabled to state that Parnell's Chalybeate Saline is what it purports to be, a mild Chalybeate and tonic, possessing aperient and alterative properties to a sufficient extent to render it an efficient, and as I believe, a valuable medicine. The ingredients are judiciously combined so as to yield, when mixed with water, an agreeable effervescent draught.

Professor of Chemistry and Pharmacy to the Pharmaceutical Society of Great Britain.

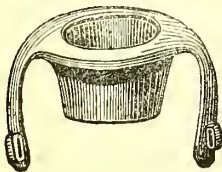
To be obtained in Bottles, 2s. 6d., from SANGER & CO., NEWBURY & SON, and all Wholesale and Retail Chemists, and from

26 BUCKINGHAM PALACE ROAD, S.W.

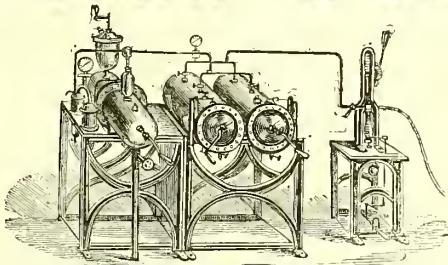
Show Cards and Handbills sent free on application. Paris Agent—M. SWANN, Rue Castiglione.

SODA-WATER MACHINERY.

PATENT NOZZLE



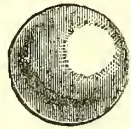
FITS ANY BOTTLE.



CONE STOPPER.



BALL STOPPER.



SODA WATER MACHINE COMPLETE, WITH RACK.

DAVENPORT'S NOZZLE AND STOPPER is the best Patent for utilising old Bottles, and converting them into Patents. No Corks or Wire, and saving entire cost in one season. The New Nickel-plated Nozzle makes this the most attractive Patent in use. Trial allowed. Prices lowered. Send for Samples. New Bottles ready fitted for use now supplied. Catalogues of Soda-Water Machines, Ice-Making Machines, Engines, Boilers, Copper Cylinders, Syphons, Seltzogenes, Filters, &c., and all accessories to the Soda-Water Trade.

AGENTS FOR HAYWARD TYLER & CO.'S SODA-WATER MACHINERY.

BARRETT & ELERS' Patent Stoppers in Lamont's Bottles.

Illustrated Catalogues, of sixty-four pages, post free to all parts of the World.

DAVENPORT & CO., Soda-Water Machinists and General Machinery Agents,
 99N HIGH HOLBORN. LONDON.



LONDON, 1862.



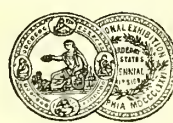
LONDON, 1873-74.



PARIS, 1867-78.



VIENNA, 1873.



PHILADELPHIA, 1876.



CAPE, 1877.

SODA WATER MACHINERY,

And all accessories connected with the business.

HANDSOME MARBLE COUNTER FOUNTAINS,

For dispensing Iced Fruit Drinks.

MACHINES FROM 30 POUNDS.

Sole Agents for Codd's Patent Globe-Stoppered Soda Water Bottles.

In use by over 500 established Soda Water Makers in England alone.

SOLE MAKERS OF THE IMPROVED LONDON-MADE SYPHON, 2s. each in quantities.

CATALOGUE FORWARDED FREE.

THE "LONDON-MADE" SYPHON.

BARNETT, SON & FOSTER, 23^T Forston St., Shepherdess Walk, City Road, London, N.

RANDALL, SLOPER & CO., SODA WATER MANUFACTURERS, SOUTHAMPTON.

GOODS FORWARDED CARRIAGE PAID WITHIN 80 MILES OF
SOUTHAMPTON, ON ORDERS OF 2 GROSS AND UPWARDS.

**Soda, Seltzer, Potash & Aerated Waters
supplied in Syphon Bottles.**

Importers of Hunyadi János, Friedrichshall, Vichy,
Pullna, Carlsbad, and other Foreign Mineral Waters,
supplied at Prices which will bear comparison with
London Rates.

PRICE LISTS FORWARDED ON APPLICATION.

GENUINE BRIGHTON SELTZER AND

OTHER AERATED WATERS,

Prepared with scrupulous care as to chemical accuracy, and
with the Natural Spring Water of Brighton, the Purest
in the Kingdom.

**JOHN CHALLONER & SONS,
MINERAL WATER MANUFACTURERS,
PROVIDENCE PLACE,
BRIGHTON.**



See our Advertisement, May Edition.

J. H. CUFF'S MINERAL WATERS, Atkinson St., Deansgate, MANCHESTER.

SODA WATER
SELTZER WATER
POTASS WATER
15 grs.

LEMONADE
GINGER ALE
LITHIA WATER
5 grs.

LITHIA WATER WITH POTASS.
QUININE TONIC WATER, &c., &c.

SENT IN BIN CASES. NO PACKING REQUIRED.

Carriage paid on 12 Doz. assorted, or 6 Doz. of one kind.

Priced Lists free on application.

DISCOUNT ACCORDING TO QUANTITY.

SPECIAL TERMS FOR EXPORT ORDERS.

Attention is directed to Cuff's Soda, Seltzer, and Potass
Waters, and Ginger Ale (the latter a speciality), all of which
command a very extensive and ready sale.

Cuff's Waters are prepared expressly for a High-class
Family Trade.

FOREIGN MINERAL WATERS.

FREDERICKSHALL (5 Cases, 6d. per Case less) 24/6 Case, 30 bot... 34/ Case, 60 1-bot
APOLLINARIS (20 Hprs., 1/- per Hpr. less) ... 25/ Hpr., 50 " ... 39/ Hpr., 100 "
Hampers free, carriage paid; Empty Bottles, 6d. per dozen.
HUNYADI JÁNOS (10 Cases, 3-bts., 5/- less: 10 Cases, bts., 3/- each less)
SELTZER ... 30/- Case, 25 bts. ... 50/- Case, 50 1-bts.
PULLNA ... 11/6 Hpr., 25 " ... 15/6 Hpr., 50 "
VICHY ... 18/- Case, 20 " ... 30/- Case, 50 "
CARLSBAD ... 31/- " 50 " ... 27/- " 50 "
KISSENGEN ... 37/6 " 50 "
SCHWALLBACH ... 45/- " 50 "
HOMBURG ... 27/6 " 50 "
WILDUNGEN ... 37/6 " 50 "
CARLSBAD SALTS, 1-Bots., 21/- per doz.; 1-Bots., 41/- per doz.; Bots., 80/- per doz.

FINE NORWEGIAN BLOCK ICE.

ORIGINAL BLOCKS, 2 to 3 cwt. each ... 2/6 per cwt
1 cwt. to 2 cwt. ... 3d. per lb. | Under 1 cwt. ... 1d. per lb.
Packing and Mats for Original Blocks free; 3d. each allowed for Mats if returned
in good condition.

PRINTED DIRECTIONS for STORING ICE sent free on application.

**W. B. HARRISON,
Importer of Ice & Mineral Waters,
6 BRIDGE STREET, SUNDERLAND.**

"ABSOLUTELY PURE."

SEE ANALYSES. Sent post free on application.

ELLIS'S



REGISTERED.

RUTHIN

WATERS.

CORKS BRANDED "R. ELLIS & SON, RUTHIN," and every
label bears their Trade Mark. Sold everywhere, and wholesale of

R. ELLIS & SON, RUTHIN, NORTH WALES.

London Agents: W. BEST & SONS, Henrietta St., Cavendish Square.

MILLS & CO. BOURNE WATER, THE PUREST IN ENGLAND.

MILLS & CO., Manufacturers of the
Original BOURNE ARTESIAN AERATED WATERS.

BOURNE SODA WATER, unequalled for
its natural Alkalinity.

BOURNE POTASH WATER—a Special
Remedy for Rheumatism and Gout.

BOURNE LEMONADE—Superior Quality,
made from the Fruit.

BOURNE LITHIA WATER—Specific for
the Gout. Guaranteed to contain a fixed quantity of Lithia.

BOURNE SELTZER WATER—The natural
Alkalinity of the Bourne Artesian Well Water, combined
with Artificial Salts, produces one of the best articles made.
This Seltzer Water is well adapted for invalids for its purity.
When taken at dinner-time, it promotes digestion.
Early in the morning, slightly aperient.

R. M. MILLS & CO., MANUFACTURERS, BOURNE.
Messrs. Padgett & Son, Wine Merchants, 27 Motcombe
Street, and Messrs. Hardy & Co., Chemists, 42 Fenchurch
Street, corner of Mincing Lane, Wholesale Agents,
London.

And their appointed Agents throughout the Kingdom.

HAY'S SOLUBLE ESSENCE OF JAMAICA GINGER

(GUARANTEED PURE AND FREE FROM CAPSICUM).

This highly concentrated Essence has the purest Jamaica Ginger flavour and aroma, is highly adapted for the manufacture of Aërated Waters, and for all dietetic, medicinal, and pharmaceutical purposes.



THE COST of this Essence in the manufacture of Ginger Beer, &c., is a little under 2 $\frac{3}{4}$ d. per dozen bottles. Dose (when used medicinally), 10 or 15 drops to half-a-teaspoonful in water.

Trade Price, 5s. per lb.

THE COMPOUND ESSENCE

(GUARANTEED PURE AND FREE FROM CAPSICUM).

Trade Price, 5s. 6d. per lb.

This Essence, which is an addition of *Vanilla, Lemon, and other flavours* to the above, is strongly recommended for the manufacture of Ginger Beer, Wines, &c., to which it imparts with the GINGER a PECULIARLY FINE FRUITY FLAVOUR and AROMA. THE COST of this Essence in the manufacture of Ginger Beer, &c., is a little under 3d. per dozen bottles.

Directions for the use of this and the preceding Essence.

For GINGER BEER, CORDIALS, &c., 8 fluid ounces will be required to make inclusively one gallon of Syrup, or 1 in 0
For WINES, one pint of Essence will flavour 5 gallons, or 1 in 40.

THE COMPOUND FORTIFIED ESSENCE Specially adapted for the Manufacture of GINGER ALE.

Trade Price, 5s. 6d. per lb.

THIS ESSENCE, besides its special adaptation as above, is strongly recommended for the manufacture of GINGER BEER and other kinds of Aërated Beverages, especially in those cases where it is desired to impart to those drinks at a SMALL COST the FULLEST amount of PUNGENCY with the FINE GINGER AROMA and FRUITY FLAVOURS of the LAST-MENTIONED ESSENCE.

DIRECTIONS.—For the manufacture of GINGER ALE, one pint will be required inclusively for four gallons of Syrup, or five fluid ounces in each gallon. For GINGER BEER or GINGERADE, one pint in five gallons Syrup, or four fluid ounces in each gallon. THE COST of this Essence in the manufacture of GINGER ALE is 1 $\frac{3}{4}$ d. per dozen bottles, and for GINGER BEER or GINGERADE a little under 1 $\frac{1}{2}$ d. per dozen bottles.

MEDICAL AND OTHER OPINIONS ON THE SOLUBLE ESSENCE:—

"Singularly free from resin."—*The Lancet*, London, July 13th, 1878.

"It is a pure, elegant preparation, and is free from resinous matter. Ginger Beer made with it is clear and transparent, has the aroma and flavour of the Ginger, and is very pleasing to the palate."—*Medical Times and Gazette*, London, March 16th, 1878.

"It should entirely supersede the official preparation of the *British Pharmacopœia*. The Ginger Beer made with this pure TINCTURE OF GINGER is extremely grateful and palatable. It is clear and bright as water; in fact, it will be scarcely recognised under the old name, and is CERTAINLY PREFERABLE TO SOME WINES we have tasted under the name of CHAMPAGNE."—*Medical Press*, London, March 20th, 1878.

"It is a Pharmaceutical Desideratum. Ginger Beer manufactured from this ESSENCE has the purest Jamaica Ginger Aroma, distinguishable as soon as poured out. It is a beverage fit for any gentleman's table, and ought to attain great popularity."—*The Chemist and Druggist*, London, November 15th, 1877.

"Contains the Essential Oil or Aromatic constituent of the root, has the Aroma of Ginger without the unpleasant taste of the resin, and is specially adapted for flavouring Ginger Beer."—*Pharmaceutical Journal*, London, December, 1877.

"It is really necessary that a superior Ginger Beer should be introduced to the public, and in Mr. Hay's Ginger Essence we find the very ingredient to bring about such a desideratum."—*Mineral Water Trade Recorder*, London, May 1st, 1878.

PREPARED BY
W. HAY, Manufacturing Chemist,
4 REGENT'S TERRACE, ANLABY ROAD, HULL.

Agents—Messrs. HEARON, SQUIRE & FRANCIS, Wholesale Druggists, 5 Coleman St., London, E.C.

ESTABLISHED
1857.

GRANULAR

ESTABLISHED
1857.**EFFERVESCENT MINERAL WATER SALTS.**

For the preparation of artificial waters, these Granular Effervescent Salts are especially suitable. They give a refreshing draught, and may be relied on as presenting at the same time the chemical ingredients of the natural waters. It is obvious that in this form the Granular Effervescent preparations present many advantages over the waters themselves. Whilst all the constituents of the natural springs are reproduced, the Salts are extremely portable, more economical, and with them a sparkling refreshing draught is procurable in any quantity at any time. Among the Mineral Water Salts thus prepared may be named, **Carlsbad, Kissingen, Pullna, Seltzer, Vichy.** In each case a tea-spoonful of the Salt in a tumbler of water will produce a draught similar in effect to the natural water. The Seltzer Water has been long recognised, both in this country and in Europe, as an excellent tonic and mild aperient. A bottle of the Granular Effervescent preparation of this Salt is a great addition to the dinner-table, as a small draught of the wholesome and refreshing beverage prepared from it, and taken during dinner, is both agreeable and beneficial.



Sold by all Chymists, in Bottles at 1s., 1s. 6d., and 2s. 6d. each. Also in larger ones for family use.

**BISHOP'S
GRANULAR EFFERVESCENT CITRATE OF MAGNESIA**

A perfectly white, and delicately clean preparation, prepared from salts obtained from the Pure Fruit Juices of Lemons and Grapes.

The best chymists in Great Britain and the Colonies keep no other "Granular Effervescent Citrate of Magnesia" than "Bishop's." The reason for this universal preference is that, since its introduction in 1857, it has been found that none of the Imitations of this preparation, *originally introduced by Mr. Bishop*, have been able to compare with it in reliability as a medicine, or in *purity and freshness of flavour as a cooling drink.* Full directions on each bottle.

Dr. A. H. HASSALL cautions the profession and the public to select carefully only preparations of known composition and ascertained purity, for there is no class of remedies which is liable to a greater diversity of composition and quality than the effervescent granular preparations; adding that he is able to state further that all constituents entering into the composition of Bishop's several preparations are pure and of excellent quality.

Each Bottle will bear the Name on the Seal, the Trade Mark on the Label, and full address of

ALFRED BISHOP, Manufacturing Chymist,
17 Speck's Fields, Mile End New Town, London.

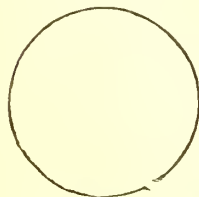
TO THE MINERAL WATER TRADE.**DISCS FOR ALL PATENT BOTTLES.**

These are a great convenience, strengthening the Cap Labels, and keeping the lips of the Bottles free from dirt. The following sorts are kept in stock:—

"PLAIN" DISCS,

Size of this Circle, on Stout Boards, no Printing.

Price—5,000, 8d.; 10,000, 7d.; 25,000, 6d.; 50,000, 5d.; 100,000, 4d. per 1,000.

**"GROTESQUE" DISCS,**

Printed on good Cardboard in Blue Ink; they consist of a great variety of Amusing Figures.

Price—5,000, 1s.; 10,000, 11d.; 25,000, 10d.; 50,000, 9d.; 100,000, 8d. per 1,000.

**"MOTTO" DISCS,**

Printed on Stout Boards in Black Ink; they consist of an immense variety of Mottoes and Well-known Sayings.

Price—5,000, 9d.; 10,000, 8d.; 25,000, 7d.; 50,000, 6d.; 100,000, 5d. per 1,000.

**"QUOTATION" DISCS,**

Printed on good Cardboard, Lake Ink; they consist of an immense number of Quotations from Shakespeare, Byron, Milton, Burns, &c., &c.

Price—5,000, 1s.; 10,000, 11d.; 25,000, 10d.; 50,000, 9d.; 100,000, 8d. per 1,000.



All the above are assorted in Boxes of 5,000, each Box containing an immense assortment.

Prices and Samples submitted for all kinds of Labels, and also for Show Cards, Circulars, Price Lists, and all printed matter required in the business.

J. B. LAMBE & CO.,
PRINTERS TO THE MINERAL WATER TRADE,
199 UPPER THAMES STREET, LONDON, E.C.

ZOEDONE

A Delicious, Sparkling, Phosphated Iron Beverage.—Non-Alcoholic.—

A Brain and Nerve Tonic, and Nutrient Tonic Beverage.

RECOMMENDED BY THE FACULTY.

From "The British Medical Journal," August 30, 1879.

Among the various medicinal and other exhibits at the recent meeting of the British Medical Association at Cork, to some of which we shall hereafter direct attention, there was one which, to our own judgment, bore away the palm. We refer to the aërated and phosphated iron beverage which Messrs. Evans & Co. of Wrexham manufacture for David Johnson, Esq., F.C.S., the patentee.

We had ample opportunities of testing its refreshing and invigorating qualities during our sojourn in the fair city of the extreme south-west; and we can confidently recommend it to the attention of physicians and others who are occasionally at a loss what to direct their patients to take when parched by feverish thirst or depressed by exhausting ailments—notably in cases where alcoholic stimulants would be prejudicial. We feel that it would be found exceedingly useful in mitigating the discomfort oftentimes experienced by those suffering from the thirst, loss of appetite, and general *malaise* connected with the last stage of phthisis and chronic bronchitis.

We would also, from our observations and experience, advise its introduction into clubs, taverns, and places of public amusement, where it would judiciously supersede vinous and alcoholic stimulants, seeing that it contains, as its name implies, life-giving ingredients in a form easily assimilated.

Every Chemist that has introduced ZOEDONE has found a large and regularly increasing sale for it. It is put up in Champagne Bottles, and there is no trouble with empties, as the bottles are included in the price. Customers supplied with Pamphlets for distribution; also a special Circular for medical men stating the formulæ.

Orders should be anticipated by one week.

Report on the ZOEDONE of Messrs. Richard Evans & Co., of Wrexham.

The Analytical Sanitary Institution, 54 Holborn Viaduct, London, E.C., Sept. 21, 1878.

I have carefully examined the new Aërated Mineral Water manufactured by Messrs. R. Evans & Co., and to which they have given the name of "ZOEDONE." I find the statements made respecting its composition to be fully borne out by the analysis. The "ZOEDONE" is a bright, sparkling, and very pleasant beverage, quite free from medicinal taste; indeed, it forms a most agreeable and elegant vehicle for the administration of the Phosphates of Lime and Iron which it contains, and which are in a complete state of solution.

ARTHUR HILL HASSALL, M.D., London,

Author of "Food, its Adulterations, and the Methods of their Detection."

ZOEDONE is supplied direct by us and our Agents on the following Terms, Cash Prices, including bottles and package, free on Rails at Wrexham—6/6 per doz. in half Champagne Bottles (in 6 doz. cases). 12/- per doz. in large Champagne Bottles (in 3 doz. cases). 6d. per doz. extra for export, packed in casks. Trade Terms on application.

WHOLESALE AGENTS:—

LONDON—Messrs. Allen & Hanburys.
 " Messrs. Corbyn, Stacey & Co.
 " Messrs. Heron, Squire & Francis.
 " Messrs. Savory & Moore.
 BIRMINGHAM—Messrs. Southall Bros. & Barelay.
 BRADFORD—Messrs. Harrison, Parkinson & Co.

BRISTOL—Messrs. Ferris & Co.
 CORK—Messrs. W. & H. Goulding.
 DUBLIN—Messrs. Hamilton, Long & Co.
 EDINBURGH—Messrs. Duncan, Flockhart & Co.
 " Messrs. John Mackay & Co.
 HAMBURG—Mr. James H. Gray.
 HULL—Messrs. Lofthouse & Saltmer.

LEEDS—Messrs. Goodall, Backhouse & Co.
 LIVERPOOL—Messrs. Evans, Sons & Co.
 MANCHESTER—Messrs. James Woolley, Sons & Co.
 PARIS—Hogg, 2 Rue Castiglione.

PATENTEE—DAVID JOHNSON, F.C.S.

Manufacturers, RICHARD EVANS & CO., Wrexham, North Wales.

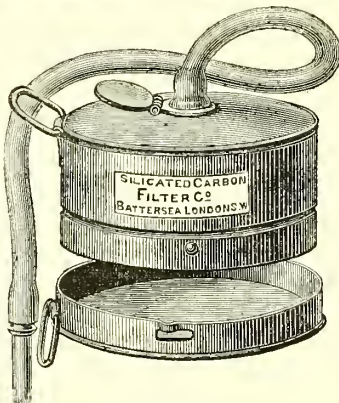
NOVELTY.

SILICATED CARBON POCKET FILTER,

IN GERMAN SILVER, NICKEL-PLATED.

Retailed at **FIVE SHILLINGS** each.

Designed by
MAJOR FRASER,
of the
ROYAL ENGINEERS,
especially
for Officers' Kits.
Weights only 8 ounces.



It has been approved
by the
Authorities at the
Horse Guards, and has
been largely
used in the Afghan and
Zulu Expeditions.

No. 20 H.

Sample sent free by Post on receipt of **FOUR SHILLINGS**.

DOMESTIC FILTER, NO. 27.



Made in cream-coloured Stoneware, fitted with the Silicated Carbon Media, complete with Cover and Silver-plated Tap.
All sizes of this pattern can now be had with Patent Ice Compartment, which renders this Filter the most perfect of Refrigerators.

		PRICES.	With Ice Compartment.
No. 0, capacity	$\frac{1}{2}$ gall.	.. 10s. 6d.	.. —
No. A, "	1 "	.. 14s. 6d.	.. 17s. 6d.
No. B, "	2 "	.. 21s. 0d.	.. 25s. 0d.
No. C, "	4 "	.. 32s. 0d.	.. 36s. 0d.
No. D, "	6 "	.. 42s. 0d.	.. 48s. 0d.
No. E, "	8 "	.. 52s. 0d.	.. 60s. 0d.
No. F, "	12 "	.. 70s. 0d.	.. 80s. 0d.

UNIQUE STONEWARE FILTER, NO. 28.

No House should be considered as thoroughly furnished until it is supplied with one or more good Filters.

No Water should be used for Drinking or Cooking without being Filtered.

This Filter is made of a New Ornamental Stoneware, similar in shape to the Domestic Filter, and of two-gallon capacity. When arranged in a Hall or Conservatory, side by side with evergreens, the effect is very pleasing.

Price, with Silver-plated Tap, 30s.



MAIN SUPPLY FILTER, NO. 40.

SPECIALLY ADAPTED FOR
Mansions, Schools, Hospitals, Public
Institutions, Breweries, Distilleries,
Soda Water Manufactories,
Dye Works,

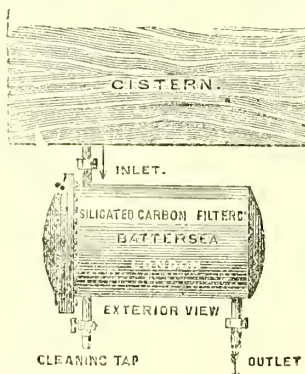
And all other Establishments where large quantities of

PURE WATER

Are required.

The ordinary Sizes kept in Stock are as follows:—

A, $\frac{1}{2}$ -inch or $\frac{3}{4}$ -inch pipe	£6 6s.
B, 1-inch pipe	£9 9s.
C, $1\frac{1}{4}$ -inch, $1\frac{1}{2}$ -inch pipe	£15 15s.
D, 2-inch pipe	£26 5s.



This Filter is extremely simple in construction, and can be either connected with a Cistern or attached to the Main Service Pipe. It requires no attention beyond an occasional opening of the Cleansing Tap, and will deliver a supply of purified water at a rate of 50 to 1,000 gallons per hour, according to size.

Special Contracts entered into
for Large Works, Institutions,
&c., &c.,

FOR PURIFYING THE WHOLE OF THE WATER SUPPLY OF A BUILDING BEFORE USE.

Ensuring Rapid and Perfect Filtration, at either High or Low Pressure.

SILICATED CARBON FILTER CO., CHURCH ROAD, BATTERSEA, LONDON.

PARIS: 131 Boulevard Sebastopol.

NEW YORK: 19-1 William Street (H. R. Mensing, Agent).

HAMBURG: 9 Deichstrasse (Joseph Schmutzer & Co., Agents).

SILICATED CARBON FILTERS.

SYPHON FILTERS FOR TRAVELLERS.

By means of these Filters pure and perfectly wholesome water may be drunk from any pond or stream by simply immersing the Filter therein and drawing the water through the tube by suction.

Each of these portable Filters may be



No. 20.

used as a Syphon by placing it in a vessel of water, then drawing the water by the mouth, and allowing the flexible tube to hang over the side below the Filter. When once set in operation their action is continuous.

They are readily cleaned from sedimentary matter by merely blowing through the tube, and brushing the surface of the filtering medium.

- | | |
|--|-------|
| A.—Pocket Filter, $2\frac{1}{2}$ inches diameter, in porcelain, with glass mouthpiece, in decorated metal box | s. d. |
| B.—Ditto, $3\frac{1}{2}$ inches diameter, in best stoneware | 2 6 |
| C.—Emigrant's, 5 inches diameter, with silver-plated tap | 5 0 |
| Ditto, " " with silver-plated tap | 7 0 |
| G.—Pocket Filter, for carrying over shoulder, as supplied to the Forces in Abyssinia and in Zululand, and to the Ashantee Expedition | 12 0 |
| H.—Ditto, nickel-plated, designed by Major Fraser, R.E., and specially recommended by the Horse Guards for Officers' kits | 3 6 |
| | 5 0 |

TABLE FILTER, NO. 24.

Made of stout glass, in 1, 2, and 3 pint sizes, the filtering medium being securely fitted into the bell-funnel, so that it is not liable to become loose, or to allow unfiltered water



to pass. This Filter is peculiarly suited for the Bedroom and for Table use, affording a ready and simple means of obtaining at any time freshly-purified water.

PRICES.

O, 2s. 6d.; A, 4s.; B, 5s. 6d.
Engraved Vine Pattern—O, 3s. 6d.; A, 5s. 6d.; B, 7s. 6d.

POROUS TERRA COTTA FILTER, NO. 29.

Shape of this Filter as Fig. No. 24.

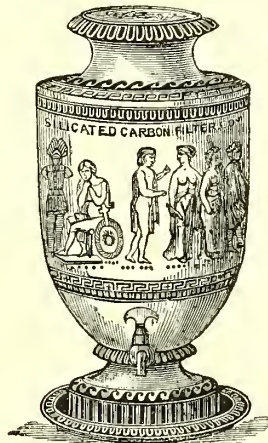
O, 2s. 6d.; A, 4s.; B, 5s. 6d.

SILICATED CARBON BLOCKS.

2in., 1s. 6d.; $2\frac{1}{2}$ in., 2s. 6d.; $2\frac{3}{4}$ in., 3s.; 3 $\frac{1}{2}$ in., 4s.; 4 $\frac{3}{4}$ in., 5s. 6d. ea.
SPECIAL QUOTATIONS FOR QUANTITIES.

PRIZE FILTER,

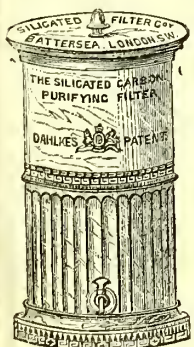
This Filter is constructed in the form and colour of an Etruscan Vase, having inside it a movable pan, into which the Silicated Carbon filtering medium is fitted.



PATTERN NO. 23.

The exterior is made of Porous Ware, which acts with remarkable power as a Refrigerator, keeping the water deliciously cool. Capacity, about Two Gallons.

PRICE, WITH SILVER-PLATED TAP, £3 10s.



DINING-ROOM FILTER, No. 22.

MADE IN MARBLED CHINA.

Size A holds about two gallons; size B, five gallons.

PRICES.

- | | |
|---|-------|
| A | 35s. |
| B | 80s. |
| A, with Ice Compartment (New Patent.) | 42s. |
| B, with Ice Compartment (New Patent.) | 100s. |

The large size (B) is specially adapted for Hotels, Refreshment Rooms, Luncheon Bars, &c.

REFRIGERATOR FILTER, NO. 25.

Made in Porous Terra-Cotta Ware,

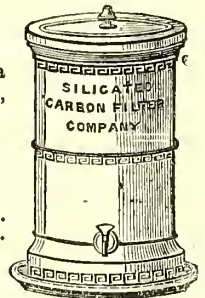
Which acts with remarkable power as a cooler, and renders this Filter invaluable, especially in Tropical Climates,

AFFORDING A

COOL DRAUGHT OF PURE WATER.

- | | |
|--|----------|
| Price, with Silver-plated Tap | 31s. 6d. |
| Ditto, ditto, with Ice Compartment | 42s. 0d. |
| Capacity, Two Gallons. | |

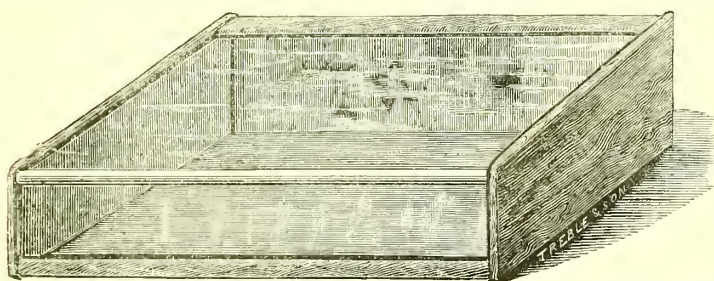
Specially adapted for Tropical Climates.



PORTABLE FILTER, No. 34, for Travellers at Hotels, Families at the Seaside, Pic-nics, &c. Made in Marbled Porcelain, with Cover. Can be placed in a jug, decanter, or other vessel. Price 7s. 6d. each.

SILICATED CARBON FILTER CO., CHURCH ROAD, BATTERSEA, LONDON.

TREBLE & SON'S SPECIALITIES.



THE WELL-KNOWN "LONDON" SHOW CASE.

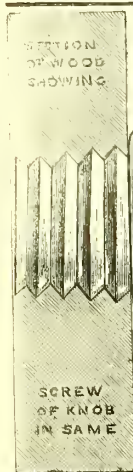
SIMPLE, ELEGANT, AND USEFUL.

Made of Solid Mahogany and French Polished; Polished Plate Glass Top and Front $\frac{1}{4}$ inch thick.

This Show Case cannot be equalled at the price.

Among the many advantages combined in this useful and inexpensive SHOW CASE, we may mention that it is so made that two or any number may be placed together, to occupy full length of counter if required. It is made 24 in. long, 18 in. wide, 8 in. high at back, and 7 in. in front. A bright burnished Silverdine Bar has been introduced in front, which has an excellent effect; does not change colour; is always bright, and merely requires dusting. The back of Case is hinged to open, and secured by a brass spring catch. The bottom of Case is covered with blue leatherette.

Special Price, 18/6 for Cash.



**FULL
SIZE.**

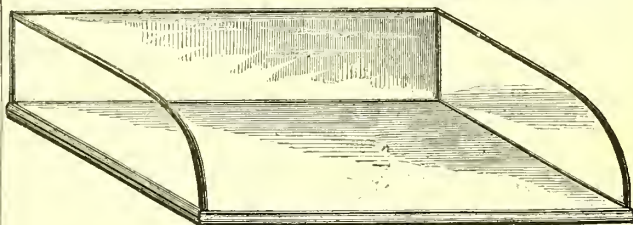
**REGISTERED
CRYSTAL
CUT GLASS
DRAWER KNOB**

PRICE 4/6 doz.

Borers for Making Holes,
and Tool for making the
Screw in drawer front,
1s. each.

A Sample Knob will be sent by Post
on receipt of Six Stamps.

TREBLE'S HALF-GUINEA SHOW CASE.



10/6 Cash.

Packed in Deal Box for enclosure Free of Charge.

This neat and elegant little Show Case is 14 inches long, 10 inches back to front, 3 inches deep inside, with clear bent glass top, glass ends, silvered glass mirror back, the bottom lined with blue velvet, and edged with ebony.

GEO. TREBLE & SON,

MANUFACTURERS OF

CHYMIST'S SHOP FITTINGS

OF ELEGANT DESIGN

AND SUPERIOR CONSTRUCTION,

GLOUCESTER STREET,

HOXTON,

LONDON, N.

If New Fittings are required or alterations become necessary apply to Geo. Treble & Son, whose Travellers will call to take in structions and measurements in any part of the kingdom, and will prepare suitable designs & estimates free.

BEST WORK ONLY.]

[BEST WORK ONLY.

FILMER KIDSTON,

MEDICAL SHOP FITTER & SHOW CASE MAKER,

AND MANUFACTURER OF EVERY DESCRIPTION OF DRUGGISTS' FURNITURE.

NOTICE.

Chemists commencing Business, Fitting-up Shops, or making alterations to their premises, should first inspect KIDSTON's modern and unique style of manufacture, so much approved of by the Profession for its elegant appearance and superior finish.

Plans and Estimates supplied. Gentlemen are invited to inspect KIDSTON'S

PRIZE DISPENSING COUNTER,

Which can be seen at the Show Rooms,

DUKE STREET, BRUSHFIELD STREET, BISHOPSGATE, LONDON.

ILLUSTRATED LISTS OF SHOW CASES ON APPLICATION.

ESTABLISHED 1851.

CHEMISTS' SHOP FITTERS,

SHOW CASE MAKERS & SHOP FRONT BUILDERS.

JOHN CURTIS & SON,

NORTH OF ENGLAND STEAM SHOP FITTING WORKS,

WADE STREET AND WADE LANE, LEEDS.

Designs and Estimates furnished.

EXPERIENCED FITTERS SENT TO ALL PARTS. DESIGN SHEETS FORWARDED ON APPLICATION.

SPRATTS PATENT

MEAT "FIBRINE" DOG CAKES & POULTRY MEAL,

DOG MEDICINES AND DOG SOAP.

TO CHEMISTS AND DRUGGISTS.

The above Goods have an enormous Sale. For Terms, address—

"SPRATTS PATENT," Bermondsey, S.E., or order through your Wholesale House.

Wholesale Agents for the Soap and Dog Medicines:—Barelay & Sons; Sanger & Sons; Sutton & Co.; F. Newbery & Sons; Lynch & Co., London; Raimes & Co., Edinburgh, York, and Liverpool; Ravensdale Mill Co., Dublin; Woolley, Sons & Co., Manchester; Taylor, Gibson & Co., Newcastle-on-Tyne; Goodall, Backhouse & Co., Leeds; and of all Wholesale Houses.

RHODES'

CURATIVE AND CONDITION MIXTURE

FOR DOGS,

Especially recommended to the Nobility, Master of Hounds, Hunting Men, and Dog Fanciers.

The best known Remedy for the effectual Cure of Distemper, Worms, Vomiting, Diseases of the Skin, will promote Appetite and Condition, giving a smooth coat and a healthy condition. Eulogised in terms of the highest approbation by all who have tried it as a cure and prevention (which is better than cure).

"Caractacus," in the *Sportsman's Journal*, April 12, 1879, in his article on the Baring of Young Dogs, &c., says, in speaking of the various remedies for the different Diseases of Dogs, "In all fairness we must not omit Mr. Rhodes' Mixture, which I have tried on many occasions and never knew it to fail."

Sold in Bottles, at 1s., 2s. 6d., and 4s. 6d.; for the use of large kennels in Tins at 2s., containing twelve 2s. 6d. bottles; and 4s. Tins, containing twenty-four 2s. 6d. bottles—A GREAT SAVING. The Tins forwarded CARRIAGE PAID to all parts of the United Kingdom upon receipt of the amount.

May be obtained from the principal Wholesale Houses, or the Proprietor and Inventor,

JOSEPH RHODES, Chemist, East-thorpe, Mirfield.

Dr. BILLING'S

INSTANTANEOUS DISINFECTANT & DEODORIZER

IS THE MOST RELIABLE AND THE CHEAPEST
IN THE WORLD.

Harmless to furniture and linen. Does not stain. Harmless, colourless, and Odourless, but powerful! It instantly deodorises and disinfects any material it is applied to, no matter how foetid or offensive! Destroys and neutralises instantly all poisonous gases, arrests decomposition, and prevents contagion. Reliable and safe in the sick chamber, the hospital, and for all sanitary purposes.

ONLY ONE QUALITY—THE BEST!"

In 1s. and 2s. bottles, sufficient to make two gallons of the best and cheapest disinfectant in the world.

Special prices by the gallon or quantity.

OFFICES AND DEPÔT: 77 CANNON STREET, E.C.

BY ROYAL



LETTERS PATENT.

SPOROKTON

(TUSON'S PATENT),

The best combined Volatile and Non-Volatile

DISINFECTANT,

DEODORISER AND ANTISEPTIC.

Manufactured by

SUTTON & PHILLIPS, STOWMARKET, SUFFOLK.

LONDON DEPOT—WHITE HORSE YARD, 100 HIGH HOLBORN.

CIRCULARS FREE BY POST ON APPLICATION.

CHAMBERS' ENCYCLOPÆDIA says: "The most powerful of disinfectants is Chloride of Lime."—See Article on Disinfectants.



CHLORIDE OF LIME,

IN WATERPROOF, AIRTIGHT, & ODOURLESS PACKAGES.

Protected by Royal Letters Patent.

Is neat and clean, and convenient for use. Being airtight and odourless, retains its strength unimpaired.

It is admirably adapted for Export, and will keep for years in any climate.

In 1-lb., 3-lb., and 5-lb. Packages, packed into 24-lb. Boxes and 50-lb. Cases, each separately, or the three sizes assorted in each Box or Case. Also in Penny Packages, packed in 1-gross Boxes. Packed also into 1-cwt. and 2-cwt. Cases, to meet the requirements of the Export Trade and large buyers.

The Wholesale Trade and Shippers only supplied, and a Liberal Discount given. Samples and Terms on application.

WHOLESALE AGENTS:—S. MAW, SON & THOMPSON; BURGONYNE, BURBIDGES & CO.; BARCLAY & SONS; WM. MATHER, London and Manchester; JAS. WOOLLEY, SONS & CO.; Manchester; EVANS, SONS & CO., Liverpool; or may be had of any other Wholesale Druggist or Shipper.

NATIONAL CHEMICAL CO., 26 TABERNACLE WALK, LONDON, E.C.

FERRIS & COMPY'S

PURE THYMOL SOAP,

PREPARED FROM

THYMOL, THE NEW ANTISEPTIC AND DISINFECTANT.

THYMOL, a newly-discovered Crystal prepared from Wild Thyme (*Origanum Vulgare*), is pronounced by some of the most eminent Chemists and Physicians in Europe to be far superior to, and stronger than, Carbolic Acid, Coal Tar, or any other of the Antiseptics and Disinfectants hitherto known. It has been shown by the experiments of LEWIN and BUCHOLTZ to be about eight times as powerful as Carbolic Acid.

It has also the very great advantage of being **QUITE HARMLESS**, and possesses the **DELICIOUS and FRAGRANT ODOUR of WILD THYME**.

FERRIS & COMPY'S PURE THYMOL SOAP,

Manufactured by them with their Pure Crystals of Thymol, is confidently recommended as one of the very best and most elegant Soaps ever introduced to the Public.

It is adapted for the **TOILET** as a **SKIN SOAP**, as an **ANTISEPTIC SOAP**, and **FOR GENERAL FAMILY USE**.

An easy test of its effectiveness is, that it at once and completely removes the odour of Tobacco Smoke.

See that each Cake bears our registered Trade Mark.

Sold in Tablets, 6d.; or in Boxes, containing 3 large Tablets, 1s. 6d. per Box.

SOLE MANUFACTURERS—

FERRIS, BOORNE, TOWNSEND & BOUCHER,

Wholesale and Export Druggists and Chemists to the QUEEN,

BRISTOL,

And may be procured through all Chemists.

LONDON AGENTS—Messrs. LYNCH & Co., 171A Aldersgate Street, E.C.; Messrs. WM. EDWARDS & SON, 157 Queen Victoria Street, E.C.

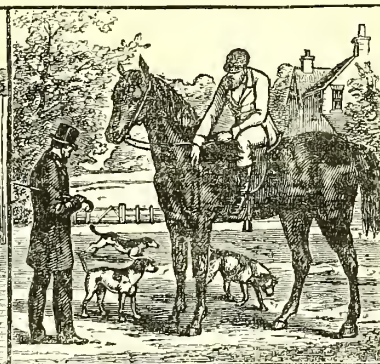
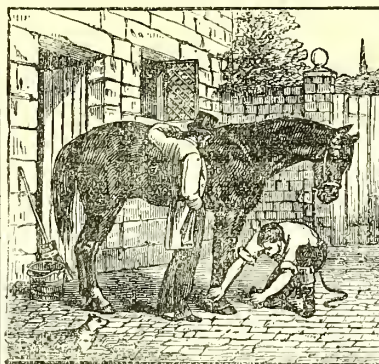
ELLIMAN'S ROYAL EMBROCATION
 12 BOTTLES 2s. 26d. & 3s. 6d. EACH

A CERTAIN CURE FOR

Sprains, Crabs, Splints, Broken Knees,
 Sprung Sinews, Overreaches, Sore Lacks, Sore Shoulders,
 Chapped Heels, Bruises, Sore Throats,
 Influenza.

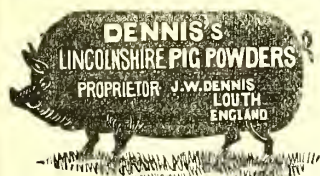
Prepared by ELLIMAN, SONS & CO., SLUTH.

ELLIMAN'S ROYAL EMBROCATION
 is used in most Stables and in the Stables of the Masters of
 Stag and Fox Hounds; among others—Baron Rothschild,
 Mr. Moore, near Leighton Buzzard; Earl of Maclesfield;
 The Marquis of Humby; Hon. R. B. Hallie Hamilton, M.P.;
 Lord Middleton; Duke of Buccleuch; Earl of Yarborough;
 Earl of Shannon; Earl of Eglington and Winton; J. T. D.
 Llewellyn, Esq.; A. Emsley, Esq.; J. B. Booth, Esq.; C.
 Morrell, Esq.; Capt. R. Tonson Rye; Lieut. Col. Everett.



Lame Hunter. (Trade Mark.) The Royal Hunter Cured.
ELLIMAN'S ROYAL EMBROCATION.

DENNIS'S CELEBRATED LINCOLNSHIRE PIG POWDERS



TRADE MARK. NO. 14389.

THESE Powders have now been before the Public for Ten Years. The large and increasing sale, together with the numerous testimonials constantly being received, prove that the public are fully alive to the fact that they are the **BEST MEDICINE for DISEASES** to which **PIGS** are subject and are also the best **CONDIMENT** known. They have an immense sale wherever introduced, and the Proprietor is desirous to assist all who will undertake to keep them in stock by supplying them with Show Cards, Posters, and Counter Bills with name and address thereon. They are put up in Penny Powders, each Powder a full dose; but are almost invariably sold in Packets containing Six and Twelve Powders to Retail at Fivepence and Tenpence. Retailers will be charged 40/- per Gross for Fivepenny, and 80/- per Gross for Tenpenny Packets, less usual discount, by

Hovenden & Son, W. Mather, Newbery & Son, and W. Edwards & Son, London; Lofthouse & Co., Hull;

Raimes & Co., York; or from the Proprietor,

JOHN W. DENNIS, CHEMIST, LOUTH, LINCOLNSHIRE, ENGLAND.

HORSE, CATTLE, AND SHEEP MEDICINES.



BY ROYAL APPOINTMENT.

DAY, SON & HEWITT,

INVENTORS AND SOLE PROPRIETORS OF THE



"ORIGINAL" STOCK BREEDERS' MEDICINE CHESTS,

For all Disorders in Horses, Cattle, Calves, Sheep, and Lambs.

Patronised for over 40 years by Royalty, and the principal Stock Breeders, Horse Proprietors, and Agriculturists of the British Empire.

The No. 2 MEDICINE CHEST contains the following matchless remedies:—

- "CHEMICAL EXTRACT," for all External Injuries, and Ewes Lambing.
- "GASEOUS FLUID," for Colic, Scour, or Diarrhoea, and Debility.
- "RED DRENCH," for Cleansing Cows and Ewes, and for Inflammation.
- "RED PASTE BALLS," for Mares after Foaling, and Conditioning Horses.
- "BRONCHOLINE," for Husk or Hoose in Sheep, Lambs, and Calves.
- "GASEODYNE," for Heaving and Paining, "CARMINATIVE CHALK," &c.

Price of Chest, with Guide to Farriery, £2 16s. 6d. No. 1 Complete Medicine Chest, in Polished Case, £6s. 6s.

Horsekeeper's Chest, No. 4, £2 17s. 6d.

CARRIAGE PAID TO ALL PARTS.

Admirably adapted for all ordinary ailments among Stock, and each preparation can be had separately. Full and easy directions enclosed.

Patronised by Royalty and the leading Agriculturists of the British Empire, and awarded "Certificate of Merit" by the National Agricultural Society of Victoria, Australia, Spring Exhibition, 1871; President's Medal at the Spalding Show, July, 1872; Silver Medal, Manchester and Salford Show, November, 1874; Silver Medal, Preston Agricultural Show, June, 1875; Silver Medal, Northamptonshire Agricultural Society, Stamford Show, September, 1875; Silver Medal, Cheshire Agricultural Society, Crewe Show, September, 1875; Special Prize, National Agricultural Society of Victoria, Australia, Spring Exhibition, November, 1875; Medal, Cheshire Agricultural Society, Cheshire Show, 1876; Silver Medal, South African Exhibition, Cape Town, 1877; Silver Medal, Northumberland Agricultural Society, Newcastle-on-Tyne Show, August, 1877; Silver Medal, Knutsford Show, July, 1878; Medal, North Berwick Show, July, 1878; and Medal, Dairy Show, London, October, 1878.

CAUTION.—Beware of low-priced Imitations, and see that the name of DAY, SON & HEWITT is on all Bottles and Packets.

Prepared only by **DAY, SON & HEWITT, 22 DORSET STREET, BAKER STREET, LONDON, W.**

And sold by Messrs. Burgoyne, Durbidges & Co., Barclay & Sons, W. Edwards, Newbery & Sons, Sanger & Sons, and all Wholesale Druggists, in London; Hood & Co., Melbourne; Kempthorne, Prosser & Co., Dunedin and Auckland; Fairthorne & Co., Launceston.



THE SANITARY FLUID



ANTISEPTIC DISINFECTANT for Preventing Epidemics and Destroying Infectious Diseases, as supplied to the Royal Arsenal, Woolwich. This Fluid is a powerful Antiseptic, Disinfectant, and Deodoriser, and from its harmlessness may be applied in any direction without any ill effects, and with the best possible results. **THE "PRINCESS ALICE" CALAMITY.**—The Sanitary Fluid was used at the Woolwich Dockyard for Disinfecting over 600 Bodies. The Clothing taken from the Bodies and over 500 Sheets were also Disinfected in large Cauldrons, also the Building, Yards, &c., giving the greatest satisfaction to the Dockyard and Parish Authorities. The work was carried out under the superintendence of Mr. HARMER.

TESTIMONIAL.—"H.M. Dockyard, Woolwich, September 23, 1878. SIR,—I beg to inform you that I consider your Disinfectant, as applied in the Dockyard both to buildings and clothing after the removal of the dead from the premises, very efficacious, and, from its cleanliness and absence of smell, very superior to the Disinfectants in the form of powder generally used.—Faithfully yours, J. T. BARRINGTON, Assistant Commissary General. Mr. Harmer, Stratford, E." For Asylums, Schools, Sanitary Authorities, Railway and Dock Companies, Workhouses, Shipping, Stables, Cowhouses, Cattle in transport, &c. Price 1/ per bottle; 3/6 per gallon; large quantities at a cheaper rate, of the Sole Manufacturer, W. J. HARMER, West Ham Lane, Stratford, E., or through Agents.

The **MAGIC FLUID** for General Household Purposes, price 1/6 per gallon. Write for Pamphlet, with Testimonials, &c. **NON-POISONOUS.**

SIDDALL'S CELEBRATED BEETLE POWDER!!

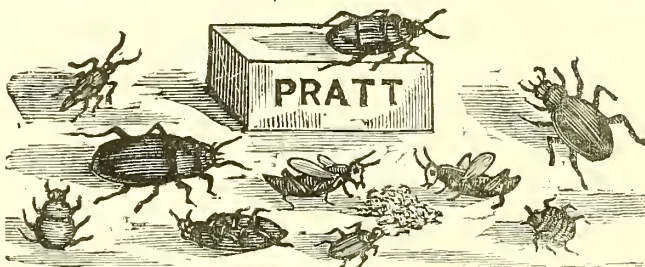
NO ADVANCE IN PRICE, BUT CHEAPER THAN EVER!!

Death to Beetles!!

Death to Cockroaches!!

Death to Crickets!!

3d., 6d., and 1s. packets.



Death to Black Clocks!!

Death to Bugs!!

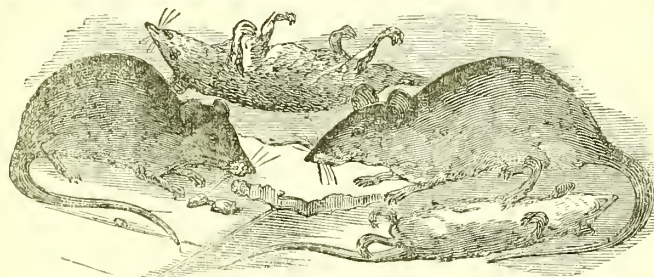
Death to Fleas!!

3d., 6d., and 1s. packets.

Has been established for more than Thirty Years, and is an excellent and most satisfactory Insecticide for the destruction of household pests—such as Black Clocks, Beetles, Crickets, Fleas, &c.

Sole Proprietor—**HENRY J. PRATT** (late **SIDDALL**), Pharmaceutical Chemist, **YORK.**

BATTLE'S VERMIN KILLER. { Mice eat it readily, and Die on the spot.



Has an Immense Sale, and wherever introduced never fails to give satisfaction.—Mice appear attracted to it as by magic, eat it readily, tumble over, and die on the spot. Rats usually die in their runs.—Parties troubled with Vermin may be cleared at once, either from Stacks, Houses, or Ships.

TESTIMONIALS.—Thousands might be published.

From Mr. THOMAS COLTON, Agent for Selby.—A friend of mine purchased a Packet of your VERMIN KILLER last night, doubting its efficacy; to-day he called in to say that he had found fifteen dead mice, and had only used part of a packet.—From Mr. EDWARD STURDY, Flemington Mills.—I duly received by post the Packet of your VERMIN KILLER, and found it as represented in your advertisement. It speedily destroyed all the mice in my granary. I enclose 2s. for two more Packets.—Leeds, November 6th 1877.—I have tried BATTLE'S VERMIN KILLER, and have found it most effectual in clearing my premises of LARGE QUANTITIES OF RATS.—THOMAS S. CROSLAND.—Mr. Stead.

Sold in Packets, 3d., 6d., and 1s. each.

SOLE PROPRIETOR:

Mr. J. R. BATTLE, Chemist, Lincoln, England.

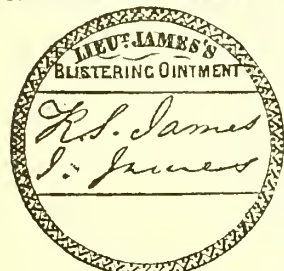
No Chemist or Storekeeper should be without a supply.

ESTABLISHED 1833. HORSES.—LIEUT. JAMES'S BLISTER.

CAUTION.

The annexed Label is at the top of every Pot of the ORIGINAL and only GENUINE BLISTER.

The Messrs. Barclay & Sons, 95 Farringdon Street, London, and Messrs. Raimes & Co., Edinburgh, Liverpool, and York, are now and have been Agents 45 years.



AGENTS.—Sutton & Co., 10 Bow Churchyard; W. Edwards & Son, 157 Queen Victoria Street; Newbery & Son, 37 Nevigate Street; Evans, Lescher & Evans, Bartholomew Close; Burgoyne, Burdidges & Co., 16 Coleman Street; Lynch & Co., 171A Aldersgate Street; W. Mather, Farringdon Road, London, and Manchester; Tidman & Son, Wilson Street; Sanger & Son, 150 Oxford Street; Millard & Sons, 40 Charterhouse Square; Corry & Soper, Shad Thames; A. A. Campbell, Leadenhall Street, London; Woolley, Sons & Co., 59 Market Street, Manchester; Apothecaries' Company, Virginia Street, Glasgow; Boileau & Co., Bride Street, Dublin; McMaster & Co., 121 & 122 Capel Street, Dublin; Hunt & Co., 17 Westland Row, Dublin; Clarke & McMullen, Victoria Street, Belfast; D. Galbraith, Londonderry. And by all Chemists, in Pots, 1/6, 2/9, and 5/.

COLONIAL AGENTS.—MELBOURNE and WELLINGTON: Felton, Grimwade & Co.; SYDNEY, BRISBANE, and LAUNCESTON: Elliott Bros. & Co.; DUNEDIN and AUCKLAND: Kempthorne, Prosser & Co.; CALCUTTA: Smith, Stanistreet & Co.

R. S. JAMES, 31 Years Sole Manufacturer, **STANFORD, FARRINGTON, BERKS.** Advertised in "Bell's Life" 45 years. Beware of a Spurious Imitation.

100 Rats destroyed for a Shilling by

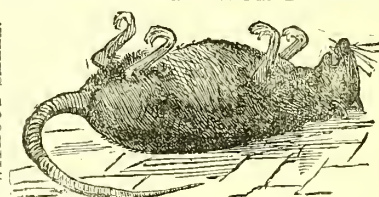
BARBER'S PHOSPHOR PASTE.

WRAPPED NEATLY FOR THE COUNTER.

You would never sell any other if you were desirous of pleasing your Customers.

CATS AND DOGS WON'T EAT IT.

Kills Rats, Beetles, &c.
THE DEAD VERMIN
DRY UP
WITHOUT SMELL.



Guaranteed the best
destroying Paste in
the world.

3d., 6d., 1s., 2s. 6d., and 5s. Tins. Also

BARBER'S VERMIN KILLER.

Kills Mice upon the spot. In packets, 3d., 6d., and 1s.

Testimonial from Her Majesty's Ratcatcher.

"Hampton, Middlesex, May 25th, 1870.—I have been more than forty years employed at Hampton Court Palace, the Royal Stables, and other buildings in and around the Royal Parks, for the destruction of rats, mice, and other vermin, and after trying all the rat poisons which I have heard of, I now use BARBER'S PHOSPHOR PASTE and VERMIN KILLER, with which alone I am able to keep these ancient palaces and national works free from vermin. (Signed) CHARLES SHONES."

WORKS, SALISBURY: ESTABLISHED 1848.

Special Quotations to Shippers. Supplied by all the London Wholesale Houses.

CHEMISTS

Are invited to send to the Laboratory for a gratis supply of

"AMICUS CANIS"

for distribution amongst their clients. A demand for the MEDICINES almost invariably follows their circulation. The Pamphlet is neatly got up, and forms a welcome gift to all who keep dogs.

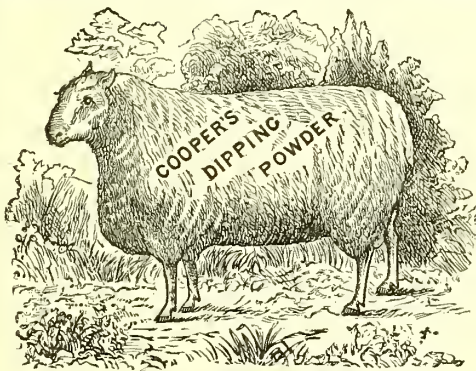


The Medicines may be obtained of the Wholesale Houses, or direct from the Laboratory for Cash.

HORSE AND CATTLE CONDIMENT.

WANTED, Chemists and Druggists with a trade amongst Farmers, as AGENTS for one of the best and cheapest CONDIMENTS made. Wherever introduced it is largely sold, and the demand for it steadily increases.

Apply to SLATER BROS., CARLISLE.



COOPER'S SHEEP DIPPING POWDER

Is soluble in Cold Water, and should be used in preference to any other Dip,

FOR TICKS, FLY, SCAB, AND FOR ALL OTHER SHEEP DIPPING PURPOSES.

This Dip has been in use upwards of 35 years, and has never been equalled by any other; it is of uniform strength, does not stain the wool, and is equally good as a Summer or Winter Dip. It is especially recommended for Dipping Lambs, and as a certain Cure for Scab.

In Packets to Retail at 1s. 4d. each, for 20 Sheep.

Counter Bills and Directions in English, Spanish, Dutch, &c., may be had free on application.

Terms and all particulars may be had of the Proprietor,

WILLIAM COOPER, M.R.C.V.S., Chemical Works, Berkhamsted, Herts.

WHOLESALE HOUSES

At home and abroad, by forwarding

"AMICUS CANIS"

to retail Chemists for distribution, will find a profitable demand created for the MEDICINES. Any quantity will be supplied gratis, with name of firm inside cover, on application at the Laboratory.

COOPER'S WHEAT DRESSING

FOR

PREVENTING SMUT IN WHEAT,

Promoting the Germination of the Seed, AND PROTECTING IT FROM ALL INSECTS.

In Packets, price 6d., sufficient for 6 Bushels of Wheat.

COOPER'S CARBOLIC SEED PROTECTOR

(NON-POISONOUS)

PREVENTS SMUT IN WHEAT,

AND THE RAVAGES OF

ROOKS, GAME, AND INSECTS.

This Powder dissolves in Cold Water and is easily used, and is suitable for every description of Seed. It prevents Birds and Slugs from eating the seed, but is perfectly harmless to Game and Poultry and to those using it. It does not contain any Poisonous ingredient. No other Dressing of any kind is required, and no other will be found to give such general satisfaction as this.

In Packets (with plain Directions), price 6d., sufficient for 4 Bushels of Seed.

Counter Bills, Posters, &c., with Agent's Name, may be had post free on application.

Terms and full particulars may be had of the Proprietor,

W. COOPER, Chemical Works, Berkhamstead, Herts.

PURE LEICESTERSHIRE LEAF LARD, especially prepared for Pharmaceutical use, in 10-lb. air-tight tins, 6d. per lb.; also in 1, 2 and 3 cwt. casks, 42s. per cwt.; slightly tinged lard for sheep and cattle ointment, 37s. per cwt.; finest lard oil, 3s. 9d. per gallon; fine neatfoot oil, 4s. per gallon; Cooper's "Excelsior" machine oil, 2s. 7d. per gallon; an excellent lubricant for light machinery, 2s. per gallon; dark lubricant, 1s. 10d. per gallon. The Trade only supplied. Apply, J. Cooper Lard and Oil Merchant, Church Gate, Leicester.

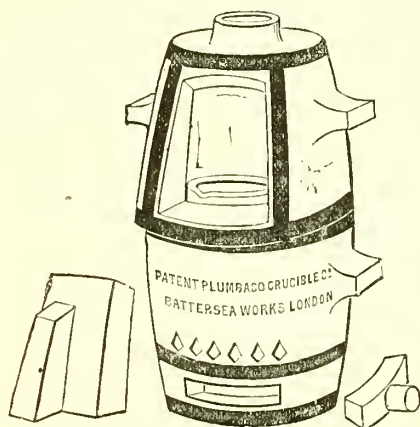
PATENT PLUMBAGO CRUCIBLE COMPANY

(SOLE MANUFACTURERS OF MORGAN'S PATENT CRUCIBLES).

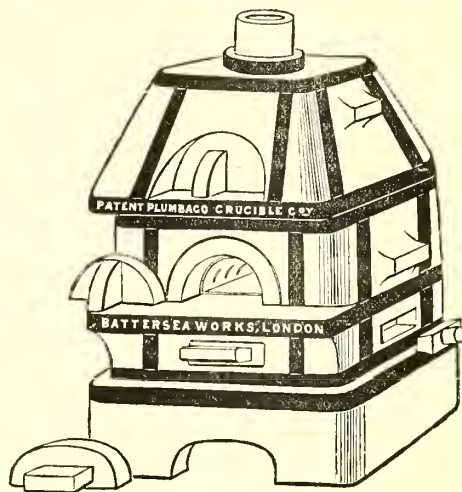
PORTABLE FURNACES.

IRON BOUND. EXTERIOR DIMENSIONS.

For MELTING GOLD, SILVER, COPPER, &c. FOR ASSAYING, DENTAL WORK, &c.



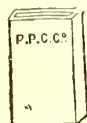
No. 1.



No. 2.

Melting Furnaces	Diam.	Height	For a Morgan's Patent Crucible	Price
No.	in.	in.	No.	£ s. d.
A	9½	17½	2	1 0 0
B	9½	20	4	1 5 0
C	11	22	6	1 10 0
D	13½	26	8	2 5 0
E	14½	28	12	3 0 0
F	18	32	16	4 0 0

Muffle Furnaces	Diameter	Height	Furnace
No.	in.	in.	£ s. d.
A	12½	24½	2 0 0
B	13½	25½	2 5 0
C	14½	27	2 10 0
D	15½	28½	3 0 0
E	16½	29½	3 10 0
F	17½	30	4 0 0



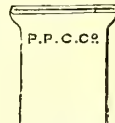
POROUS BATTERY CELLS

RED OR WHITE.



ROUND.

OUTSIDE DIMENSIONS.



FLAT, WITH EARS.

Diam. 1 in., height 4 in., 1/6; 5 in., 2/ per dozen.

" 1½ in., " 4 in., 2/; 5 in., 2/6; 6 in., 3/ per dozen.

" 2 in., " 4 in., 2/6; 5 in., 3/; 6 in., 4/; 7 in., 4/; 8 in., 4/6;

" 2½ in., " 4 in., 3/; 5 in., 3/6; 6 in., 4/; 7 in., 4/6; 8 in., 5/; 9 in.,

" 3 in., " 5 in., 4/; 6 in., 5/; 7 in., 5/6; 8 in., 6/; 9 in., 7/;

" 3½ in., " 5 in., 4/6; 6 in., 5/6; 7 in., 6/; 8 in., 6/6; 9 in., 7/6;

" 4 in., " 5 in., 5/6; 6 in., 6/6; 7 in., 7/6; 8 in., 8/6; 9 in., 9/6;

" 4½ in., " 5 in., 6/6; 6 in., 7/6; 7 in., 8/6; 8 in., 9/6; 9 in., 10/6;

" 5 in., " 5 in., 7/6; 6 in., 8/6; 7 in., 9/6; 8 in., 10/6; 9 in., 11/6;

" 5½ in., " 5 in., 8/6; 6 in., 9/6; 7 in., 10/6; 8 in., 11/6; 9 in., 12/6;

" 6 in., " 5 in., 9/6; 6 in., 10/6; 7 in., 11/6; 8 in., 12/6; 9 in., 13/6;

" 6½ in., " 5 in., 10/6; 6 in., 11/6; 7 in., 12/6; 8 in., 13/6; 9 in., 14/6;

" 7 in., " 5 in., 11/6; 6 in., 12/6; 7 in., 13/6; 8 in., 14/6; 9 in., 15/6;

" 7½ in., " 5 in., 12/6; 6 in., 13/6; 7 in., 14/6; 8 in., 15/6; 9 in., 16/6;

" 8 in., " 5 in., 13/6; 6 in., 14/6; 7 in., 15/6; 8 in., 16/6; 9 in., 17/6;

" 8½ in., " 5 in., 14/6; 6 in., 15/6; 7 in., 16/6; 8 in., 17/6; 9 in., 18/6;

" 9 in., " 5 in., 15/6; 6 in., 16/6; 7 in., 17/6; 8 in., 18/6; 9 in., 19/6;

" 9½ in., " 5 in., 16/6; 6 in., 17/6; 7 in., 18/6; 8 in., 19/6; 9 in., 20/6;

" 10 in., " 5 in., 17/6; 6 in., 18/6; 7 in., 19/6; 8 in., 20/6; 9 in., 21/6;

" 10½ in., " 5 in., 18/6; 6 in., 19/6; 7 in., 20/6; 8 in., 21/6; 9 in., 22/6;

" 11 in., " 5 in., 19/6; 6 in., 20/6; 7 in., 21/6; 8 in., 22/6; 9 in., 23/6;

" 11½ in., " 5 in., 20/6; 6 in., 21/6; 7 in., 22/6; 8 in., 23/6; 9 in., 24/6;

" 12 in., " 5 in., 21/6; 6 in., 22/6; 7 in., 23/6; 8 in., 24/6; 9 in., 25/6;

" 12½ in., " 5 in., 22/6; 6 in., 23/6; 7 in., 24/6; 8 in., 25/6; 9 in., 26/6;

" 13 in., " 5 in., 23/6; 6 in., 24/6; 7 in., 25/6; 8 in., 26/6; 9 in., 27/6;

" 13½ in., " 5 in., 24/6; 6 in., 25/6; 7 in., 26/6; 8 in., 27/6; 9 in., 28/6;

" 14 in., " 5 in., 25/6; 6 in., 26/6; 7 in., 27/6; 8 in., 28/6; 9 in., 29/6;

" 14½ in., " 5 in., 26/6; 6 in., 27/6; 7 in., 28/6; 8 in., 29/6; 9 in., 30/6;

" 15 in., " 5 in., 27/6; 6 in., 28/6; 7 in., 29/6; 8 in., 30/6; 9 in., 31/6;

" 15½ in., " 5 in., 28/6; 6 in., 29/6; 7 in., 30/6; 8 in., 31/6; 9 in., 32/6;

" 16 in., " 5 in., 29/6; 6 in., 30/6; 7 in., 31/6; 8 in., 32/6; 9 in., 33/6;

" 16½ in., " 5 in., 30/6; 6 in., 31/6; 7 in., 32/6; 8 in., 33/6; 9 in., 34/6;

" 17 in., " 5 in., 31/6; 6 in., 32/6; 7 in., 33/6; 8 in., 34/6; 9 in., 35/6;

" 17½ in., " 5 in., 32/6; 6 in., 33/6; 7 in., 34/6; 8 in., 35/6; 9 in., 36/6;

" 18 in., " 5 in., 33/6; 6 in., 34/6; 7 in., 35/6; 8 in., 36/6; 9 in., 37/6;

" 18½ in., " 5 in., 34/6; 6 in., 35/6; 7 in., 36/6; 8 in., 37/6; 9 in., 38/6;

" 19 in., " 5 in., 35/6; 6 in., 36/6; 7 in., 37/6; 8 in., 38/6; 9 in., 39/6;

" 19½ in., " 5 in., 36/6; 6 in., 37/6; 7 in., 38/6; 8 in., 39/6; 9 in., 40/6;

" 20 in., " 5 in., 37/6; 6 in., 38/6; 7 in., 39/6; 8 in., 40/6; 9 in., 41/6;

" 20½ in., " 5 in., 38/6; 6 in., 39/6; 7 in., 40/6; 8 in., 41/6; 9 in., 42/6;

" 21 in., " 5 in., 39/6; 6 in., 40/6; 7 in., 41/6; 8 in., 42/6; 9 in., 43/6;

" 21½ in., " 5 in., 40/6; 6 in., 41/6; 7 in., 42/6; 8 in., 43/6; 9 in., 44/6;

" 22 in., " 5 in., 41/6; 6 in., 42/6; 7 in., 43/6; 8 in., 44/6; 9 in., 45/6;

" 22½ in., " 5 in., 42/6; 6 in., 43/6; 7 in., 44/6; 8 in., 45/6; 9 in., 46/6;

" 23 in., " 5 in., 43/6; 6 in., 44/6; 7 in., 45/6; 8 in., 46/6; 9 in., 47/6;

" 23½ in., " 5 in., 44/6; 6 in., 45/6; 7 in., 46/6; 8 in., 47/6; 9 in., 48/6;

" 24 in., " 5 in., 45/6; 6 in., 46/6; 7 in., 47/6; 8 in., 48/6; 9 in., 49/6;

" 24½ in., " 5 in., 46/6; 6 in., 47/6; 7 in., 48/6; 8 in., 49/6; 9 in., 50/6;

" 25 in., " 5 in., 47/6; 6 in., 48/6; 7 in., 49/6; 8 in., 50/6; 9 in., 51/6;

" 25½ in., " 5 in., 48/6; 6 in., 49/6; 7 in., 50/6; 8 in., 51/6; 9 in., 52/6;

" 26 in., " 5 in., 49/6; 6 in., 50/6; 7 in., 51/6; 8 in., 52/6; 9 in., 53/6;

" 26½ in., " 5 in., 50/6; 6 in., 51/6; 7 in., 52/6; 8 in., 53/6; 9 in., 54/6;

" 27 in., " 5 in., 51/6; 6 in., 52/6; 7 in., 53/6; 8 in., 54/6; 9 in., 55/6;

" 27½ in., " 5 in., 52/6; 6 in., 53/6; 7 in., 54/6; 8 in., 55/6; 9 in., 56/6;

" 28 in., " 5 in., 53/6; 6 in., 54/6; 7 in., 55/6; 8 in., 56/6; 9 in., 57/6;

" 28½ in., " 5 in., 54/6; 6 in., 55/6; 7 in., 56/6; 8 in., 57/6; 9 in., 58/6;

" 29 in., " 5 in., 55/6; 6 in., 56/6; 7 in., 57/6; 8 in., 58/6; 9 in., 59/6;

" 29½ in., " 5 in., 56/6; 6 in., 57/6; 7 in., 58/6; 8 in., 59/6; 9 in., 60/6;

" 30 in., " 5 in., 57/6; 6 in., 58/6; 7 in., 59/6; 8 in., 60/6; 9 in., 61/6;

" 30½ in., " 5 in., 58/6; 6 in., 59/6; 7 in., 60/6; 8 in., 61/6; 9 in., 62/6;

" 31 in., " 5 in., 59/6; 6 in., 60/6; 7 in., 61/6; 8 in., 62/6; 9 in., 63/6;

" 31½ in., " 5 in., 60/6; 6 in., 61/6; 7 in., 62/6; 8 in., 63/6; 9 in., 64/6;

" 32 in., " 5 in., 61/6; 6 in., 62/6; 7 in., 63/6; 8 in., 64/6; 9 in., 65/6;

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" 33 in., " 5 in., 63/6; 6 in., 64/6; 7 in., 65/6; 8 in., 66/6; 9 in., 67/6;

" 33½ in., " 5 in., 64/6; 6 in., 65/6; 7 in., 66/6; 8 in., 67/6; 9 in., 68/6;

" 34 in., " 5 in., 65/6; 6 in., 66/6; 7 in., 67/6; 8 in., 68/6; 9 in., 69/6;

" 34½ in., " 5 in., 66/6; 6 in., 67/6; 7 in., 68/6; 8 in., 69/6; 9 in., 70/6;

" 35 in., " 5 in., 67/6; 6 in., 68/6; 7 in., 69/6; 8 in., 70/6; 9 in., 71/6;

" 35½ in., " 5 in., 68/6; 6 in., 69/6; 7 in., 70/6; 8 in., 71/6; 9 in., 72/6;

" 36 in., " 5 in., 69/6; 6 in., 70/6; 7 in., 71/6; 8 in., 72/6; 9 in., 73/6;

" 36½ in., " 5 in., 70/6; 6 in., 71/6; 7 in., 72/6; 8 in., 73/6; 9 in., 74/6;

" 37 in., " 5 in., 71/6; 6 in., 72/6; 7 in., 73/6; 8 in., 74/6; 9 in., 75/6;

" 37½ in., " 5 in., 72/6; 6 in., 73/6; 7 in., 74/6; 8 in., 75/6; 9 in., 76/6;

" 38 in., " 5 in., 73/6; 6 in., 74/6; 7 in., 75/6; 8 in., 76/6; 9 in., 77/6;

" 38½ in., " 5 in., 74/6; 6 in., 75/6; 7 in., 76/6; 8 in., 77/6; 9 in., 78/6;

" 39 in., " 5 in., 75/6; 6 in., 76/6; 7 in., 77/6; 8 in., 78/6; 9 in., 79/6;

" 39½ in., " 5 in., 76/6; 6 in., 77/6; 7 in., 78/6; 8 in., 79/6; 9 in., 80/6;

" 40 in., " 5 in., 77/6; 6 in., 78/6; 7 in., 79/6; 8 in., 80/6; 9 in., 81/6;

" 40½ in., " 5 in., 78/6; 6 in., 79/6; 7 in., 80/6; 8 in., 81/6; 9 in., 82/6;

" 41 in., " 5 in., 79/6; 6 in., 80/6; 7 in., 81/6; 8 in., 82/6; 9 in., 83/6;

" 41½ in., " 5 in., 80/6; 6 in., 81/6; 7 in., 82/6; 8 in., 83/6; 9 in., 84/6;

" 42 in., " 5 in., 81/6; 6 in., 82/6; 7 in., 83/6; 8 in., 84/6; 9 in., 85/6;

" 42½ in., " 5 in., 82/6; 6 in., 83/6; 7 in., 84/6; 8 in., 85/6; 9 in., 86/6;

" 43 in., " 5 in., 83/6; 6 in., 84/6; 7 in., 85/6; 8 in., 86/6; 9 in., 87/6;

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" 49½ in., " 5 in., 96/6; 6 in., 97/6; 7 in., 98/6; 8 in., 99/6; 9 in., 100/6;

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" 55 in., " 5 in., 107/6; 6 in., 108/6; 7 in., 109/6; 8 in., 110/6; 9 in., 111/6;

" 55½ in., " 5 in., 108/6; 6 in., 109/6; 7 in., 110/6; 8 in., 111/6; 9 in., 112/6;

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" 56½ in., " 5 in., 110/6; 6 in., 111/6; 7 in., 112/6; 8 in., 113/6; 9 in., 114/6;

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" 57½ in., " 5 in., 112/6; 6 in., 113/6; 7 in., 114/6; 8 in., 115/6; 9 in., 116/6;

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" 58½ in., " 5 in., 114/6; 6 in., 115/6; 7 in., 116/6; 8 in., 117/6; 9 in., 118/6;

" 59 in

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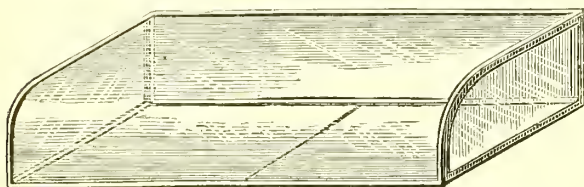
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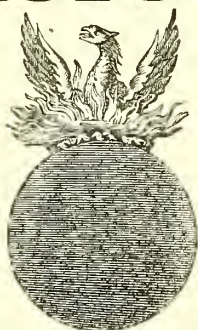
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ENO'S "FRUIT SALT,"

"FRUIT SALINE," OR "FRUIT POWDER."

ENO v. STEPHENS IN THE COURT OF CHANCERY.

Shorthand Writer's Notes of Vice-Chancellor Bacon's Summing-up and Judgment.

Sir HENRY JACKSON, Q.C., on proceeding to sum up in detail on the evidence and arguments in the case, was stopped by the VICE-CHANCELLOR in the following words:—

Sir Henry Jackson, I do not think I ought to trouble you. The case has been discussed at very great length. I confess somewhat to my astonishment when Mr. Hemming declined to adopt the evidence as it was before the Court of Appeal, and put the Plaintiff to prove by the same evidence the same facts which had been proved before, I was under the impression that he meant to call witnesses on his own behalf. If that had been, as it probably may have been his intention at that time, there would have been a reason perhaps for repeating over again at very great length and considerable expense, of course to somebody, the evidence upon which the Court of Appeal had acted—I say nothing about what was done in this Court, but the Court of Appeal had acted upon that evidence. The case, however, concludes, and no evidence whatever is adduced by the Defendant—not even his own statement in his Defence is verified by his own affidavit. What is to be done with a case like that? The whole principle of the case was decided upon the first occasion. The Court of Appeal thought it right to adopt that restriction which I had thought it right to adopt, not to extend the Injunction further than the then present exigency of the occasion required. Not one word of the judgment of the Court of Appeal shows that there should be any restriction, or that there should be any restriction when the case came on for hearing. Now it comes on for hearing upon precisely the same evidence, and the evidence, among other things, is, that in the circular which accompanies this bottle of salt, the words to which the Plaintiff particularly objects are repeated by the Defendant, and repeated by means of copying the Plaintiff's circular. Mr. Giffard says nobody buying the bottle would think of looking at the circular, for it is enclosed in the wrapper, and not even visible to the eye. But the case is one in which the Plaintiff complains of the general similarity and the general appearance of the names which are used by the Defendant, and if a purchaser entertained any doubt, if he was puzzled for a moment between "Vinous" or "Vinous," and Eno's—the sounds being, in one mode of pronunciation, very much alike—if he opened the wrapper and read the circular he would say, My doubts are removed; this is what I want—I want Fruit Saline, and here it is—the circular says it is "Fruit Saline."

The Defendant in his statement at the end of the fourth paragraph says he has not "at any time since the month of August, 1877, used the words Fruit Saline, or Fruit Powder, in any label or advertisement or otherwise in connection with the sale of the said preparation." Under the old system if a defendant had put in his answer, as he must, upon oath, he might perhaps have read that passage and said "the Plaintiff's allegation in that respect is denied." The Defence is not put in on oath and the Defendant declines to pledge his oath to that fact. But it does not rest there; for the evidence is clear and conclusive that after the month of August, 1877, when the Plaintiff, not without some degree of forbearance, as it seems to me, was content to take the Defendant's word that he would not repeat that offence which the Plaintiff complained was doing him that injury which he thought he was suffering, he did, in spite of his promise, repeat that which the Plaintiff called an offence and believed to be an injury to him. The case comes to a hearing, the Defendant insists upon the Plaintiff proving his case. At the Defendant's instance the Plaintiff has proved his case, and, among other things, has proved the utter falsehood of that Defence which is set up in the paragraph which I have read. The matter, therefore, is wholly without doubt, without defence, without excuse of any kind that I can perceive, because, when I am told that I must consider what the intention of the parties was, and when I am told, moreover, that there is no evidence that anybody has been deceived, and the Defendant in his defence says nobody has been deceived, his intention to deceive is not contradicted. That is what the Plaintiff imputes to him; and that is what, I think, the Plaintiff establishes not only from the simplicity of the sign, but from the fact that, when the complaint was first made in August, 1877, they were words which the Defendant admitted he had no right to use. For what reason? Because they were calculated to deceive—calculated to represent the Defendant's goods as those which the Plaintiff was selling under the title which he had adopted.

Upon the general case, therefore, in my opinion, the matter is beyond all doubt. It is proved that the use of the word "Fruit" with other substantives, "Saline" and "Salt," and so on, has been made by the Defendant since the time when he promised not to make it, when he admitted it was unlawful, and when I have no doubt whatever was wholly unlawful. It is said that he endeavoured to keep his promise by pasting something over the word "Fruit." Well, if that meant anything it is a plain admission of the justice of the Plaintiff's claim in that respect. But how can I consider that that is keeping his promise? Whether that pasting over was to be effectual or not would depend upon the consistency of the paste or glue, or perhaps the humidity of the atmosphere or any other accident. That there was no intention to perform his promise, I am satisfied of, and that there has been no performance of his promise I think is clear.

Upon the general case, therefore, I think the Plaintiff is entitled not only to the Injunction in the terms of the Interlocutory Order, but upon those more extensive terms which the Plaintiff asks, by his claim, should be applied to the Defendant's infringement of his rights.

Then there is another subject which is so intimately connected with that that I desired to hear them both together, and I am very glad I did, because, as Mr. Giffard has just told me, that is the main question in dispute between the parties. For the Injunction the Defendant does not seem to care much, though he has violated it, in my opinion, plainly; but he says the question is whether there is a title to register this Trade Mark for which the Defendant proposes to apply. Now that depends upon the words of the Act of Parliament which have been used, the more important of which are "so resembling as to be calculated to deceive." That is a question not to be decided by eyesight; I am invited to lay these two devices side by side, and, since they are not identical and since there are

great differences in their external appearance, to decide that they are not calculated to deceive. To that word DECEIVE I have no right to criticise or quarrel with; it is used in the Act of Parliament, and if I were to give one sense to it, it is plainly in my judgment calculated by the Defendant, meant and intended by him, to deceive any person who is not vigilant enough either in eye or in ear to detect at once the difference between Vinous and Eno's, and the difference between Fruit Salt and any other salt, Eno's title being plainly upon his Trade Mark, Eno's Fruit Salt.

It is not, as I have said, by sight; it is not by the use of a microscope; it is by any other means of detecting more or less of resemblance that you can decide a question which the statute contemplates by using the words that I have referred to. But it is whether the Registrar, whose office it is to register, is satisfied before he performs his function by registering the mark, that the applicant's mark does so resemble as to be calculated to deceive. Can any living man doubt that it is not only calculated—that is intended—but that it is also calculated—that is to say, meant and contrived for the purpose of deceiving—else why does he do it? The world is wide, as has been said in the judgment referred to, and all things in the animate and inanimate world are open to the Defendant to make a device in which the principal characteristic consists of a bunch of grapes, with a Latin motto, and the specific description which relates to Eno's Fruit Salt, the Defendant proposes to register a design in which the principal device is the stem of a vine with a bunch of grapes and some leaves, and a Latin motto around it, and it is to be called "Vinous Salt." If there was nothing in the case but the contrast of these two things, it might, perhaps, to some persons, who trusted only to their eyes, be said there was no resemblance between them, or no sufficient resemblance; but the Registrar is bound to take the whole case into his consideration; he is not to be baffled by any mere similarity or dissimilarity. That is not the way that the Court of Appeal, in the latest case that was before it—the Sheffield case—dealt with the question. The Defendant there had as good a right as anybody in the world could have to stamp his own crest or coat of arms, or anything else, upon his commodities. Nobody could dispute it, and nobody, putting the two things together, could say they were so much alike as to deceive. Mr. Hemming insisted that the stamping, being made on a hard metal, was likely to be blurred, and the persons to be deceived. I have a very clear recollection of that case, and I say it would be impossible for a man with eyes, or with one eye, in his head to mistake the device in that case for the device which the Plaintiff desired there to use.

Mr. HEMMING:—Your Lordship will pardon me, I was only quoting the Master of the Rolls.

THE VICE-CHANCELLOR:—I know, and have also clearly in my mind what the Master of the Rolls said and what he did not only in the "Dog and Porridge" case, but in that case. The Master of the Rolls' judgment takes a wide and comprehensive view of the subject. He refers to the statute only for the purpose of verifying and corroborating that view, but what he said was "an honest man who wants to mark his goods never thinks of taking the device partly or wholly which some other tradesman is employing for the purpose of marking his goods," and that I take to be the true principle of the case.

And, taking all these things together, the Plaintiff's evidence in the first place, the total absence of evidence or statement on the part of the Defendant, excepting the ingenious and elaborate statements which Counsel have addressed to me, there being no statement whatever by him at any time except that he admitted he had done wrong in using the word "Fruit," I am asked to say that there is no such resemblance between those two devices as, between those two men, are calculated to mislead in reference to the commodities tendered in the shape in which they are sent into the world. I think I should be wasting time if I observed further upon it. It is to me clearly manifest not only that there is sufficient resemblance to answer the strictest words of the statute, but that there is a resemblance which has been carefully and intentionally calculated to deceive. And as the Defendant will not pledge his oath to a contrary intention I cannot come to a contrary conclusion than that the injunction ought to go in the terms in which the bill prays for it, extending it therefore beyond the Injunctions granted on the Interlocutory Order and upon the motion, to say that the Defendant is not entitled to register the device of a branch of a vine with a bunch of grapes upon it, and a Latin motto on it and the name "Vinous Salt." There is an end of it therefore.

Sir HENRY JACKSON:—Well, my Lord, of course I must have the costs. THE VICE-CHANCELLOR:—You must have the costs of both.

Sir HENRY JACKSON:—And I think that your Lordship has given on occasions. It was impossible for us to avoid incurring that expense, although it has proved to be absolutely useless. Your Lordship has given it on several occasions, and I must ask your Lordship for the costs of taking the evidence.

Mr. HEMMING:—I do not think your Lordship is ever in the habit of giving costs of that kind, unless there is some special reason for taking the notes. I do not know whether my friend anticipates an appeal upon that evidence. I am sure he will not say so, and I do not think the Court is in the habit of allowing the costs of a shorthand note of the evidence under such circumstances. It is not taken by arrangement. It is not in every case where there is an arrangement between the two sides, and even when there is an arrangement, it is not in every case that the Court allows these costs. I ask your Lordship not to say anything about them unless a general rule is laid down that in every case either party may require a shorthand writer to be employed. We know that the rule is in the other way.

THE VICE-CHANCELLOR:—So far from laying down any rule, my notion of this particular subject of the costs incurred by the shorthand writer is that it ought not to be done without a good and sufficient reason for it. Now the reason is to me perfectly apparent and conclusive. Sir Henry Jackson proposed to treat the evidence as it had been used in the Court of Appeal, as being put in here. Mr. Hemming objected to that, and insisted upon the witnesses being examined. In my opinion it became indispensably necessary that a record of that evidence should be kept, and that could only be done according to the present practice of this Court by the employment of a shorthand writer. Mr. Hemming therefore drew down upon his own head the necessity for the employment of a shorthand writer, and having done it without reason as I thought; and having done it without effect as I have decided, in my opinion the costs ought to be included in those costs which the Defendant is bound to pay to the Plaintiff.

Mr. HEMMING:—That does not mean any transcript—there has been no transcript taken.

Sir HENRY JACKSON:—I have the transcript here, and I was prepared to sum up this morning.

Mr. HEMMING:—There was no occasion for it.

Sir HENRY JACKSON:—I do not want of course the costs of any of the speeches; I merely take the transcript of the shorthand notes of the evidence.

THE VICE-CHANCELLOR:—I think that must be so, because for anything I know this day week the Lords Justices will have them in their hands.

Mr. HEMMING:—Then would be time to ask for it.

Sir HENRY JACKSON:—My Lord has decided.



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The following Authorities join in this Declaration of Prof. Dr. Virchow:

Prof. Dr. von BUHL, München.
 Prof. Dr. FRIEDREICH, Heidelberg.
 Prof. Dr. von NUSSBAUM, München.
 Prof. Dr. KUSSMAUL, Strassburg.
 Prof. Dr. SPIEGELBURG, Breslau.
 Prof. Dr. SCANZONI von LICHTENFELS, Würzburg.

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